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ABSTRACT

This manual was designed to assist museums in becoming accessible to all individuals, including people with disabilities, in compliance with the Americans with Disabilities Act 1990 (ADA). Following an introduction that addresses museum attendance, accessibility, universal design, and different types of disabilities, chapter 1, "ADA Basics for Museums," explains the basics of the law and outlines the legal requirements of museums under the ADA. Chapter 2, "A Strategy for Accessibility," outlines a nine-step strategy of building blocks for achieving ADA compliance. The steps include: (1) accessibility statement; (2) accessibility coordinator, (3) accessibility advisory council; (4) staff training; (5) review of existing facilities and programs; (6) planning for accessibility; (7) promoting and advertising accessibility in the museum; (8) grievance procedures; and (9) ongoing review of access efforts. Chapter 3, "Accessible Facilities and Exhibits," gives a wide range of practical and specific recommendations on how museums can design accessible exhibits and programs. The final chapter, "Content Communication," presents alternative ways that museums can effectively communicate information about the content of their collections to all visitors. A 20-page resources section is provided that includes further sources of information about the ADA. (CR)

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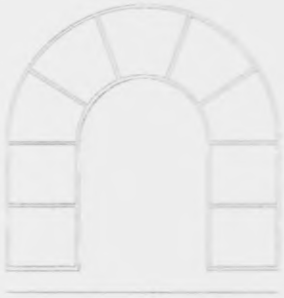

Everyone's Welcome

The Americans with Disabilities Act and Museums

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AMERICAN ASSOCIATION OF MUSEUMS

Disclaimer: While the DOJ Disability Rights Section has reviewed this manual's contents for consistency with the Americans with Disabilities Act (ADA), the ADA itself and the Department's ADA regulations and Technical Assistance Manuals should be consulted for further, more specific guidance. The opinions and interpretations within this manual are those of the American Association of Museums and Universal Designers & Consultants, Inc., and do not necessarily reflect the views of the Department of Justice.

With this manual, the American Association of Museums and Universal Designers & Consultants, Inc., are not rendering legal, architectural, engineering, or similar professional advice. The reader should refer specific questions to his or her own attorney, architect, or engineer.

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As museums seek to become more inclusive in their pursuit of excellence, strengthening their educational programs and public dimension, they also face complex challenges. Accommodating visitor needs is a crucial part of our mission and planning. *Everyone's Welcome: The Americans with Disabilities Act and Museums* clarifies the requirements of the ADA and offers creative ideas for museum professionals as they address the challenges of accessibility and universal design.

Museums—our nation's primary cultural resource—have great potential as learning environments for people of all ages. An awareness of visitor needs and accommodating visitors with disabilities have enormous growth opportunity for museums. Through institutional assessment, a museum can develop and implement strategies to enhance accessibility. When Old Sturbridge Village began the process of strengthening access, for example, we knew the challenges were great and we needed a shared vision. What brought us together was a shared goal of improving access for all visitors. We knew we did not have all the answers nor the expertise, so we agreed to expand our circle.

Our Advisory Council and the staff planning team, reflecting the diversity of our audience and bringing varied expertise to the table, have been key elements in our success. Making accessibility a matter of institution-wide concern, beginning with understanding and support at the governance level, is crucial to "growing a program." Viewing access not as compliance, we embraced part of an overall mandate to create meaningful experiences for the broadest audience. Access must be part of the ongoing program.

Encompassing more than 200 acres, our museum is arranged with a Village Common surrounded by shops, houses, stores, a bank, a law office, and meeting houses, along with an outlying farm and mill neighborhood. Those features that are fundamental to expressing an authentic and real 1830s community—narrow doorways, high steps, dirt roadways—were barriers to our progress. The complexity of this challenge encouraged us to take a holistic approach to accessibility, and our greatest achievements came when we viewed the issues as broadly as possible.

What are simply good teaching strategies for all people can strengthen the museum experience. Stabilizing our dirt paths and roadways is critical to the solid footing of all visitors, not just those who are aging or have a disability. Drawing upon imagination encourages child and adult alike to dream and extrapolate from our memories, using the affective potential to learn. Communicating effectively is the bottom line in all our work. It's what we are about.

One of the greatest "growing pains" for organizations is the new idea. It forces us to question the present or past way of operating. It is our hope these materials will make the next step to universal design less painful. The ideas are here . . . use them or adapt them to fit your situation.

Alberta Sebolt George

Alberta Sebolt George, President, Old Sturbridge Village

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Accredited by the American Association of Museums

AMERICAN ASSOCIATION OF MUSEUMS

Museums across the country are committed to making their institutions more inclusive places by welcoming the entire community as their audience. To help museums become accessible to all individuals, including people with disabilities, the American Association of Museums is pleased to provide this manual on museum compliance with the Americans with Disabilities Act (ADA). Although this manual is a comprehensive resource that addresses the museum accessibility, no single manual can answer all questions concerning the ADA and museum accessibility.

Museums in the United States are major cultural institutions within their communities, providing opportunities for life-long learning and entertainment. *Excellence and Equity: Education and the Public Dimension of Museums*™ speaks to a new definition of museums as institutions of public service and education. The second of three key concepts of this report charges museums to be **places of inclusion that welcome a diverse audience and that reflect our society's pluralism in every aspect of its operations and programs.** The key concepts and principles of *Excellence and Equity* focus museums' energies in an evolutionary way on the community in which they reside and the public they serve.

People with disabilities are part of every family and every community served by museums. Our museums need to be accessible to the broadest possible audience, regardless of ability or disability, educational background or learning style.

This manual is part of a comprehensive program addressing the issues of accessibility and the mandates of the ADA as applied to museums. AAM has also produced a video to be used by museum staff and governing bodies when planning accessibility programs and policies.

This manual benefits from the strong involvement and support of the members of the ADA and Museums National Advisory Committee, individually identified on the Acknowledgments page. These dedicated professionals provided invaluable insights into the issues of accessibility and the means to achieve it in our museums. We also want to express our gratitude to the staff of the the Disability Rights Section of the U.S. Department of Justice Civil Rights Division. Their engagement in helping AAM produce a publication useful to all museums, from the largest to the smallest, was critically important in working through all the details of the law.

This manual is a starting point, it is not the final word on the Americans with Disabilities Act or the various ways to make all museum programs and services accessible to all. Know that AAM is committed to providing the museum community with the information and resources it needs to help our institutions achieve this result.

Ed Able

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Introduction

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Introduction

I. Overview

In recent years more and more people with disabilities have joined the general public to participate in museum programs, facilities, and services nationwide. The federal civil rights law known as the Americans with Disabilities Act of 1990 (ADA) requires museums to facilitate this participation. Museums are embracing this mandate and are reaching out to make facilities, exhibits, and programs more accessible. Some museums have had vast experience in accommodating people with disabilities; others have had little or no experience. Regardless, we are all learning how to better serve the needs of our changing society. When everyone can reach and use a facility or program, it becomes more popular, more cost effective, and a richer experience, as well. However, questions remain such as: What does it take? How do I reach out? What are the needs and solutions?

This book was written to help museum staff identify needs and solutions and to make adequate and appropriate changes so that the museum experience is integrated, rich, dignified, and satisfying for all people.

Chapter 1 explains the "basics of the law." It is important that decision makers read this chapter as it outlines the legal requirements of a museum under the ADA.

Chapter 2 outlines a nine-step strategy of building blocks for achieving ADA compliance.

Chapter 3 gives a wide range of practical and specific recommendations on how museums can design accessible exhibits and programs.

Chapter 4 presents alternative ways that museums can effectively communicate information about the content of their collections to all visitors.

The Resources section is provided to give readers further sources of information on the ADA. This book should be only a starting point in your ongoing ADA efforts.

We also have included an Index at the rear of the book for quick reference to terms used in this manual.

This book makes frequent references to the Title II and III regulations and technical assistance manuals published by the U.S. government. The complete ADA Standards for Accessible Design is found in the Title III regulations.

We have tried to make it easier for readers to clearly determine which parts of this text are legal requirements under the ADA and which parts are simply recommendations. In the text that follows, mandatory requirements are indicated by boldface text and a key character indicating a Title II (★) or Title III (■) requirement. Note that all of Chapter 1 is required.

II. Who Comes to Museums and Why?

The variety of museums in the United States enriches our lives with places of wonder, learning, relaxation, and discovery. Museums serve their communities in many ways, and people visit for many reasons. A hands-on science museum proves a favorite educational trip for school children, and a lecture on American film noir draws movie buffs. Museums appeal to young and old alike, and their facilities serve many purposes. A secluded spot in a botanical garden welcomes the contemplation of a single visitor, while a trip to the zoo forecasts a day of fun for the entire family. Museums are both a refuge and a source of education and entertainment.

Because museums offer such broad and varied opportunities for experiences that go beyond who we are or what we can or cannot do, they should be places without barriers to participation.

Moreover, people seek out museums in all kinds of places because of the diversity they offer. They go to the large art museum housed in an elegant historic property, and they go to the small informal exhibit in a visitor's center located next to a nature trail walk. There are museums virtually everywhere and they satisfy nearly every taste and interest.

Going to a museum, botanical garden, or zoo is an experience all people should be able to share and enjoy. Whether it is a collection of soft drink bottle caps, a traveling exhibit of Tiffany glass, or the birth of a baby panda, there are activities and programs that appeal to everyone—people of all ages and abilities, backgrounds, and areas of interest.

Traditionally, museums, botanical gardens, and zoos have offered a variety of opportunities for education, relaxation, contemplation, and social interaction. A person's physical ability should have little to do with participation in such activities, unless the environment contains features that act as a barrier. Visitors may be children, parents, or grandparents; men or women; single or married; individuals or groups, any of whom may include people with disabilities. According to the latest survey, more than a half-billion people visit American museums each year.* Of course, some of us visit frequently, others perhaps hardly at all. As children, we may be bundled off to the local art gallery because it is "educational." For teenagers, a museum may be a place in which to hang out after school or a source of fascination about hundreds of topics. For adults, a museum may be a place to meet friends for dinner at the museum cafe or a sanctuary reserved for scholarly pursuits or quiet meditation.

Because museums offer such broad and varied opportunities for experiences that go beyond who we are or what we can or cannot do, they should be places without barriers to participation. For example, a child intrigued by the artificial tornado in a science museum can make it magically stop by moving a hand into the display.

* *Museums Count: A Report by the American Association of Museums* (Washington, DC: 1993), 63.

This experience should not be affected by the child being in a wheelchair. A pregnant mother enjoying an exhibit is relieved to find a seat along the path of a nature walk. The elderly man who is deaf receives the same pleasure as others from a lecture on classical architecture because sign-language interpretation is provided. The woman who is blind enjoys a stroll through a garden, curious about the exhibits described on her cassette player.

Many of the features that make a space accessible for people with disabilities also make life easier and more convenient for everyone else. A person does not have to be disabled to benefit from access.

Each of these scenarios illustrates ways people with disabilities can benefit from the museum, site, or program that is as accessible for them as for others without calling attention to their disabilities. The exhibit case designed with knee space for wheelchair users enables children in strollers to get closer as well. The gallery bench installed for those with low stamina is also used for general seating; the taped tour provided for those with limited vision is available to enhance the exhibit for everyone; the docent is trained to adapt his or her presentation to accommodate all visitors. These examples represent design that respects differences in ability rather than ignoring them. Each of these offers the visitor with a disability the same opportunities available to others, with the personal dignity that we all deserve.

III. What Is Accessibility?

Accessibility means different things to different people. Under the ADA, accessibility means compliance with the requirements of the Americans with Disabilities Act Standards for Accessible Design for new construction and alterations. To museums, accessibility means making the site's exhibits and programs available to all visitors. The goal of both is to eliminate most physical, communication, and policy or procedural barriers.

Physical access can mean removing barriers to allow people to move about freely. Communication access can mean providing assistive hearing and visual aids and services to help people communicate effectively. Attitudinal access can mean being sensitive to human diversity, so that people feel included and respected.

Many of the features that make a space accessible for people with disabilities also make life easier and more convenient for everyone else. A person does not have to be disabled to benefit from access.

Those of us who have had to drag a baby stroller up a flight of stairs welcome an adjoining ramp. Those who are not able to get close enough to read the labels of a popular special exhibit enjoy hearing a detailed description on audio tape or reading a free brochure. When incorporating access into the design and construction of its facilities and into the execution of its programs, the museum eliminates the stigma associated with "special services" or accommodations. When begun during the design and planning stages, access can be aesthetically appealing as well as practical.

Whether the setting is a museum, garden, or zoo, every new visitor needs information on how best to experience the facility. Visitors should be able to locate

and get to an information counter where a printed brochure or qualified interpreter can describe available programs and how to find them. If accessibility services (taped, interpreted, tactile, etc.) are integrated into the museum's policies and made available to all visitors, its programs become more cost effective, more frequently used, and better maintained. Museums that integrate access, rather than offer separate programs, appeal to a greater number of visitors, especially to families and groups with members who have disabilities.

To the maximum extent feasible, the visitor with a disability should be able to move about the facility with ease and safety and to view and interact with exhibits along with everyone else. This may require installing or modifying such common features as ramps, elevators, steps, drinking fountains, telephones, and rest rooms. It may demand more specialized changes such as repositioning displays, installing assistive listening devices and "talking" displays, or designing redundant or alternative displays and exhibits. The Americans with Disabilities Act Standards for Accessible Design apply to all new museums nationwide, while serving as a goal in evaluating existing facilities. They prescribe minimum accessibility requirements for building features of all new and renovated facilities and sites, as well as historic structures. Although the ADA Standards do not have specific provisions that address some of the unique features found in museum exhibits, the concepts and general requirements can be used to make museums accessible.

Chapter 3 of this manual discusses the application of the ADA Standards in museums. It addresses the accessible design of many features unique to museums. The alternatives it offers can benefit all visitors and help museums approach the goal of universal design.

IV. What Is Universal Design?

Universal design is the design of spaces, elements, and systems to make them as usable as possible by as wide a range of people as possible. A sometimes difficult concept, it is nevertheless gaining wide support.

Universal design affects not only a museum's built environment but the many ways it communicates with visitors. Large print and good lighting, for example, are essential components of any exhibit area because they promote easier reading and better viewing for all visitors. Similarly, level and wide aisles promote greater ease of movement for everyone.

Consider the effect of universal design on a single exhibit case. Suppose it was designed for use by a visitor in a wheelchair, labeled with large-print text, offered with tactile alternatives, and included an audio-description tour. This case now offers greater access and convenience to families with babies in strollers, visitors at the back of a large group, and small children not yet able to read. By incorporating a variety of communication modes (formats) and accommodating diverse learning styles, universal design provides greater opportunity for a wider range of visitors to enjoy and learn from museum exhibits and programs.

When all new museum initiatives embrace the spirit of inclusion that underlies both the ADA and universal design, all visitors can enjoy museum facilities and programs. In *Everyone's Nature,* Carol Hunter writes, "Universal design is the spirit of the law in action," (Hunter, 3).* Subtitled *Designing Interpretation to Include All,* Hunter's book describes how she put universal design into practice in nature centers and on outdoor trails.

Programs and facilities usually look no different nor cost significantly more when planners incorporate universal design features from a project's beginning. Experience has shown that universal design typically adds little to the cost of new construction. Moreover, when a museum goes a step further by embracing the principles of universal design, it demonstrates a responsible approach to managing its resources.

V. What Are Disabilities?

Disabling conditions vary widely. Some are visible and others not. A disabled person is not only someone who uses a wheelchair, although this is the image many people have about disabilities. There are several general categories of disability that comprise most of the disabled population: mobility, visual, hearing, and cognitive (or learning) disabilities.

Mobility impairments include a wide range of conditions that limit movement, strength, and endurance. There may be observable signs that a museum visitor has a physical disability, such as use of a cane, crutches, or wheelchair. In this context, features such as ramps, lifts, and elevators provide greater accessibility. So do less apparent accommodations like positioning exhibit descriptions at a seated person's eye level, paving a gravel trail, or installing a power door opener.

There are also more subtle signs that a visitor may be physically disabled, such as the need to rest often because of low stamina or take food breaks because of blood-sugar conditions or diabetes. In these situations, programs that allow flexible scheduling and frequent breaks offer a different kind of accessibility, yet one equally as important as a ramp.

Visual impairments range from the person with low vision not correctable with lenses who can see to move about to a person who is blind. A visitor who is blind may use a cane or guide dog to get around, so staff should know when and how to offer assistance. Museum policy must allow a guide dog or other service animal to accompany a visitor with a disability at all times, except in the rare occasions where there is direct threat to others or where the policy involved a fundamental alteration to the program. It is important to note that service animals may be needed by people with other types of disability, not just those who have low or no vision.

* Hunter, Carol. *Everyone's Nature, Designing Interpretation to Include All.* Falcon, 1994.

Often, a person who is blind or has low vision can take advantage of what would be considered visual activities if small accommodations are made. For example, a woman taking a sculpting class at the museum relies on her hands to show her the model because she is allowed to touch its features. A child attending a puppet show is offered a hands-on demonstration designed especially so that participants who are blind can see how the puppets look and move and, thus, better understand any audio/oral description provided.

Sometimes, it may not be immediately obvious that a person has a visual impairment. A person with limited vision may use a hand-held telescopic lens, for example, to view materials at close range, so staff should be trained to allow these (and other) assistive devices. When exhibit labels have large, contrasting type and good lighting, a teenager with a severe astigmatism does not have to stand inches away to read. Some museums provide an alternative in which displays and programs are also described on audio tape. These services can also be marketed to visitors without visual impairments. It allows them to move at a slower pace or hear a description repeated.

Typically, hearing impairments are not obvious unless the person is wearing a hearing aid, which a casual observer may not easily detect. As with limited vision, partial hearing loss sometimes accompanies aging and may affect a great number of a museum's visitors and staff. Some people who are deaf or hard of hearing can use dogs to alert them to sounds in their environment. Deafness may affect a person's ability to speak, depending upon the age of onset. The museum can communicate effectively in many ways depending on the nature of the communication: offering printed materials, carefully designing signage, and making available sign language or oral interpretation for programs, lectures, and proceedings that are usually offered only orally. The elderly man who took advantage of an interpreted lecture may not have been accustomed to that service, but eagerly attended when he learned of its availability. Some museums have even employed electronic signs and staff training in sign language, where the material or audience was appropriate.

People affected by stroke, head injury, or similar conditions may have difficulty with short-term memory and comprehension. People with cognitive disabilities including those with learning disabilities and people with mental retardation may have difficulty understanding information that is presented in only one way. By designing exhibits and communicating content in a variety of ways, visitors can choose the media that best suits their abilities. Depending upon the degree of impairment or other factors, a visitor may or may not be accompanied by a parent, family member, friend, or caretaker who could assist the individual. Museums are best prepared to accommodate people when the staff is trained to be helpful and patient.

It should be stressed that respect for the dignity of the individual comes first, regardless of type of disability or level of ability to communicate. That may be difficult to remember when confronted by people who respond slowly or who cannot speak well. They may only have motor losses but no cognitive limitations and may only need additional time to communicate.

Visitors with disabilities expect the same simple civilities in a public situation as do all others. People generally like to talk with others face to face, which may mean a docent sitting down to speak with a person in a wheelchair. Like all of us, people with disabilities prefer to be asked *directly* what they need rather than have the questions conveyed to a spouse or companion.

Accessibility, therefore, pertains not just to buildings and programs but to attitudes of tolerance and sensitivity as well. The ADA requires access to goods, services, and benefits offered to the public, and prohibits discriminatory exclusion because of a disability.

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Chapter 1—ADA Basics for Museums

I. Overview

As a comprehensive civil rights law for people with disabilities, the Americans with Disabilities Act (ADA) is revolutionizing the way we conduct programs and provide services, as well as the way we plan, design, build, and manage museum displays and facilities. The ADA's general nondiscrimination provisions, requirements for effective communication, and Standards for Accessible Design provide for equal opportunity and independence for people with disabilities.

II. The Disability Movement

The ADA is the culmination of a series of important legislative steps that have been taken to ensure that people with disabilities have the same opportunities available to other citizens in the areas of employment, education, housing, access to programs, and goods and services. These steps have been underway for the past forty years. They began just after World War II when disabled veterans began organizing to get out of hospitals and into jobs and obtain minimal levels of access. The ADA promotes the integration of people with disabilities into all aspects of American life. Although the disability movement has been less well publicized than other civil rights movements, people with disabilities, their families and friends, advocates, and service organizations have labored long and hard for changes in policies, programs, services, benefits, and attitudes that would improve both their quality of life and the ability of people with disabilities to enjoy the same rights and responsibilities that society affords to others.

III. Laws That May Affect Museums

One outcome of the disability rights movement has been the development of federal, state, and local laws that affect museums. While the ADA is the most recent and comprehensive federal disability-related legislation to date, several other nondiscrimination laws and accessibility standards may also apply to museums. Museums that fall under more than one of these mandatory requirements should follow the requirement that provides the greatest level of accessibility. Museum officials should be familiar with the following:

A. Architectural Barriers Act (ABA 1968)

Museums receiving federal money for the design, construction, or alteration of facilities must make sure that these buildings and facilities are accessible in accordance with the minimum accessibility standards of the ABA. The standards currently in force are the Uniform Federal Accessibility Standards (UFAS).

B. Section 504 of the Rehabilitation Act of 1973

Museums that are recipients of federal financial assistance and those operated by federal agencies are required to make their programs, when viewed in their entirety, accessible to all qualified people with disabilities. Section 504 coverage is not limited to the specific programs receiving federal funds, but extends to all operations of the museum receiving federal financial assistance. During new construction, alterations, and when buildings are modified in order to provide program accessibility, the modifications must meet the accessibility requirements contained in UFAS or equivalent state or local codes. Some museums may have both section 504 and ADA requirements.

C. State and Local Laws

Most states and many local governments have some form of human rights, civil rights, or antidiscrimination law, as well as accessibility provisions in building codes or specific disability rights legislation. Some of these require museums to provide higher levels of accessibility for people with disabilities than is required under federal laws in their buildings, programs, and facilities.

D. The Americans with Disabilities Act (ADA)

The ADA is a federal civil rights law crafted to ensure equal access for people with disabilities to employment, government programs and services, privately owned places of public accommodation, transportation, and communications. It is patterned after earlier civil rights laws that protected individuals from discrimination based on race, color, sex, national origin, age, and religion. The ADA also establishes standards for accessible design to be applied during the design, construction, and alteration of buildings and facilities to ensure that specific levels of accessibility are met in all newly altered or constructed facilities.

Museums must not take it for granted that contractors, engineers, architects, and others are knowledgeable in these matters and can, or will, automatically incorporate ADA-mandated design features into every project.

Unlike other civil rights legislation, nondiscrimination laws for people with disabilities have specific design and technical provisions and requirements in order to afford equal opportunities for participation. These provisions contain, or reference, accessibility standards that are complex. Museums must not take it for granted that contractors, engineers, architects, and others are knowledgeable in these matters and can, or will, automatically incorporate ADA-mandated design features into every project. Museums may want to develop their own in-house expertise, hire consultants, meet with local advocacy groups, contractually require design and construction entities to comply with all applicable accessibility standards and codes, or employ individuals with verifiable experience in implementing the requirements of the ADA.

The primary focus of this manual will be Title II and Title III of the ADA. It also recommends strategies and practices to take museums beyond compliance with the letter of the law into the area of universal design to enhance the museum experience for all visitors and volunteers.

IV. ADA Coverage: Who's Protected?

Under the ADA an individual is considered to have a disability if he or she:

has a physical or mental impairment that substantially limits one or more major life activities; (Examples include people with paralysis, hearing or visual impairments, seizure disorders, HIV infection or AIDS, mental retardation, or specific learning disabilities.) or

has a record of such an impairment; (Examples include cancer survivors or people who have recovered from a mental illness.) or

is regarded as having such an impairment. (Examples include people who have severe facial or other disfigurements that are substantially limiting only because of the attitudes of others.)

In addition to the coverage of people with disabilities, the ADA also covers a person on the basis of association with a person with a disability. The protections afforded under the ADA extend to those who have a known association or relationship with an individual with a disability, such as a family member, friend, or acquaintance.

V. Structure of the ADA

The ADA has five separate parts or Titles. Each addresses a specific category of coverage. Title I covers employment. Title II covers programs, services, and activities of state and local governments including public transportation. Title III covers private companies and nonprofit organizations that operate places of public accommodation providing goods and services to the public. It also covers entities offering certain types of examinations and courses. Title IV addresses telecommunications access, while Title V contains miscellaneous provisions that are applicable to all other Titles.

Laws such as the ADA must have implementing regulations that establish enforceable requirements. The ADA requires the Department of Justice to establish regulations for Titles II and III that apply to those museums that fall under them. These requirements are addressed in the following sections. For additional assistance in applying the ADA to museums, call the Department of Justice ADA Information Line at 1-800-514-0301 (voice); 1-800-514-0383 (TTY).

Titles II and III also have implementing regulations issued by the Department of Transportation, which are not discussed at length in this book. For more information on the transportation provisions of the ADA, contact the U.S. Department of Transportation listed in Resources.

Whether public or private, most museums must adhere to the employment provisions of Title I, which are incorporated in regulations issued by the Equal Employment Opportunity Commission (EEOC) and discussed in the following section. For assistance with the provisions of Title I, contact EEOC at the addresses listed in Resources.

All items in this chapter are considered ADA requirements

Must I follow Title II or Title III?

If your museum is owned and operated by a state or local government, you must follow Title II. If your museum is privately owned and operated or a nonprofit 501(c)(3), you must follow Title III. If you are privately owned but receive funds from a state or local government, then you will follow Title III. However, the government funding source may, as a means of meeting its Title II obligations, require you to comply with certain Title II provisions.

Note: If you receive funds from the federal government or one of its agencies, you must also comply with the Rehabilitation Act of 1973, as amended. If federal funds are used for design, construction, or alterations, the Architectural Barriers Act will also apply. If you have any questions about coverage, call the Department of Justice's ADA Information Line, toll free, 1-800-514-0301 (voice) or 1-800-514-0383 (TTY).

The following sections describe the general ADA requirements for museums with respect to Titles I, II, and III.

VI. Title I: Employment

The ADA prohibits discrimination against qualified persons with disabilities in all aspects of employment. This includes job application procedures, hiring, firing, advancement, compensation, training, and all other terms, conditions, and privileges of employment. It also applies to recruitment, advertising, tenure, layoff, leave, and fringe benefits.

Small private museums with fewer than fifteen employees are not covered by Title I (but they must still comply with Title III). Small museums operated by a state or local government or component of government are covered by Title I, regardless of the number of employees.

For more information on how a business or governmental entity can comply with Title I, including tax benefits for accommodations, see *A Technical Assistance Manual on the Employment Provisions (Title I) of the ADA*, or call the Equal Employment Opportunity Commission (EEOC) at 1-800-669-EEOC (voice and TTY). The EEOC investigates all Title I complaints.

Museum Volunteers

While volunteers are not employees and thus are not covered by Title I, they are protected from discrimination on the basis of disability under Titles II and III.

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VII. Title II: State and Local Governments

State and local governments or agencies known as public entities are covered by Title II of the ADA whether or not they receive federal funds and regardless of size.

A. The General Prohibition of Discrimination

1. Equal opportunity to participate; integration; planning and advisory boards; opportunity to participate in mainstream programs.

Public entities must not discriminate against "qualified" people with disabilities in the operation and delivery of programs, activities, and services. Qualified people with disabilities are those who meet the essential eligibility requirements for receipt of services or participation in a museum's programs, services, or activities. For example, if there is a special program or event for donors to the museum, a donor with a disability could not be excluded.

A primary goal of the ADA is the equal participation of people with disabilities in the mainstream of American society. The major principles of equal opportunity are as follows:

People with disabilities must have an equal opportunity to participate in and benefit from services, programs, and activities offered to others.

Separate programs are permitted where necessary to ensure equal opportunity. A separate program must be appropriate to the needs of the particular individual. Public entities should make every effort to ensure that separate programs (discussed on pages 23 & 24) do not result in unnecessary segregation.

Example: A museum that does not generally allow visitors to touch exhibits may offer a special tour for people with visual impairments in which they are permitted to touch and handle specific objects on a limited basis. This could include items related to the tour such as tools used in an archaeological dig or samples of the food fed to animals along a zoo tour.

Individuals with disabilities cannot be excluded from the regular program or required to accept special services or benefits.

Example: Despite the fact that a museum offers a special touch tour for people with visual impairments, a person who is blind wishes to accompany his friends and relatives on the standard tour. The museum cannot bar the person with a disability from the standard tour and may have to provide additional descriptive information or allow the patron with a visual impairment to touch certain exhibits, if doing so would not hurt or endanger the art or other display items.

2. Reasonable modifications in policies, practices, and procedures

Public entities must reasonably modify their policies, practices, and procedures to avoid discrimination, unless they can demonstrate that a particular modification would fundamentally alter the nature of the service, program, or activity.

Example: A museum has a policy that patrons cannot bring food or drinks into the museum. The policy does not have to be eliminated, but an exception should be made for someone who has diabetes or another blood-sugar condition and needs to eat for health reasons during a lengthy tour of the museum's exhibits.

Example: A zoo whose habitats cover a large area does not generally allow private vehicles onto the wide pedestrian pathways that pass in front of exhibits, even though at one time they were used as roads. A person who is undergoing chemotherapy for cancer and who has chronic fatigue due to the therapy wishes to tour the zoo but does not have a wheelchair or scooter sufficiently powerful to negotiate some of the grades and distances. She does have a small, motorized golf cart that will allow her to complete the tour. When the visitor approaches the zoo director with the request, she explains that the cart is similar to those used on golf courses, which have similar environmental concerns. As long as it does not pose a significant risk to the health or safety of others or significantly degrades the pedestrian pathways, the zoo should allow her to tour the facility in the cart. The zoo can impose reasonable requirements to protect other visitors and the habitats, such as requiring the patron to keep the vehicle's speed under three miles per hour. See Direct Threat on page 22. Also see the discussion of policy modifications for event tickets on page 58.

3. Eligibility criteria

A state or local government must eliminate any eligibility criteria for participation in programs, activities, and services that screen out, or tend to screen out, people with disabilities, unless it can establish that the requirements are necessary for the provision of the service, program, or activity. The public entity may, however, adopt legitimate requirements necessary for safe operation if they are based on real risks, not on stereotypes or generalizations about people with disabilities.

Example: A museum operated by a state government offers a summer day-camp for schoolchildren. The museum requires parents to fill out a questionnaire and submit medical documentation regarding their children's ability to participate in various camp activities. The questionnaire is acceptable if the museum can demonstrate that each piece of information requested is needed to ensure the child's safe participation in camp activities. The information may not be used, however, to screen out children with disabilities from admittance to the camp.

4. Effective communication

Public entities must ensure that their communications with people who have disabilities are as effective as communications with others. This obligation, however, does not require a public entity to take any action that it can demonstrate would result in a fundamental alteration in the nature of its services, programs, or activities or in an undue financial or administrative burden.

In order to provide equal access, a publicly funded museum is required to make available appropriate auxiliary aids and services when necessary to ensure effective communication. For people who are deaf or hard of hearing, these can include qualified interpreters, note-takers, computer-aided transcription services,

written materials, telephone hand-set amplifiers, assistive listening systems, telephones compatible with hearing aids, closed-caption, decoders, open or closed captioning of video presentations, telecommunications devices for persons who are deaf (TTY), video text displays, or written notes. For people with vision impairments, these can include qualified readers, taped texts, audio recordings, Braille materials, large-print materials, or assistance in locating items. Descriptive recordings or a docent who can provide a descriptive explanation of an exhibit or animal may be important in settings such as an aquarium where there is little opportunity to touch the specimens. Examples of aides for people with speech impairments include TTYs, computer terminals, and written notes.

The type of auxiliary aid or service necessary for effective communication will vary in accordance with the length and complexity of the communication involved, as well as the communication skills of the person with a disability. In the context of completing a simple transaction in a museum gift shop, it may be enough for the store clerk to write notes on a pad of paper to communicate effectively with a person who is hard of hearing. On the other hand, complex or extensive communications may require sign language or oral interpreters for someone who is deaf or hard of hearing. Factors to be considered in determining whether an interpreter is required include, but are not limited to, the context in which the communication is taking place, the number of people involved, the importance of the communication, and the person's communication skills and history.

Example: A person who is deaf and uses ASL (American Sign Language) is lending several valuable and fragile pieces to a museum. A meeting will be held at the museum to discuss the terms and conditions of the loan. Meeting participants will include museum staff, insurance carriers, environmental consultants, and attorneys. The museum should provide a qualified interpreter for this meeting as the discussion will be lengthy, complex, and technical; there will be a number of people present; and the issues to be discussed are considered extremely important by all of the participants.

When an auxiliary aid or service is required, public entities must provide an opportunity for individuals with disabilities to request the auxiliary aid or service of their choice and must give "primary consideration" to the choice expressed by the individual. The choice must be honored unless the entity can demonstrate that there is an equally effective means of communication, or that the means chosen would result in a fundamental alteration in the service, program, or activity or in undue financial or administrative burdens.

Example: An observatory holds a weekly program in which an astronomer discusses star constellations visible in the night sky from inside the darkened observatory dome. A person who is deaf and has low vision requests a sign-language interpreter for the lecture and requests that strong lights be provided so that she is better able to view the interpreter. The observatory does not have to honor this second request if providing bright lights would impede others' ability to view the constellations, as it would fundamentally alter the observatory's program. However, if there is a way to

position the interpreter and lights so that others may continue to view the program, the observatory should honor her request.

Example: A small public museum located in a remote community intends to hold a public meeting to choose next year's Board of Directors. The meeting notice is published in the local newspaper. Along with the notice is a statement that anyone who wishes to attend the meeting and needs auxiliary aids and services should call the museum's disability coordinator at a specific telephone number. No one calls. A person who is deaf arrives shortly before the meeting and requests a sign-language interpreter. The museum should make a good-faith effort to find a qualified interpreter. If the museum is unable to obtain a qualified interpreter given the late notice and the remoteness of the location, the museum has not violated Title II. It would pose an undue administrative burden to cancel the meeting and reschedule it for a later date when an interpreter would be available. The museum personnel should ask the patron who is deaf if there is another means of providing him with effective communication under the circumstances.

Although the standard of "primary consideration" under Title II does not apply to private museums under Title III, both Titles require covered entities to provide effective communication. The difference is that Title II contains a procedural requirement that the public entity consult with the individual with a disability before deciding which auxiliary aid or service to provide, while Title III strongly encourages consultation rather than making it a specific requirement.

B. Program Accessibility

1. Discrimination due to inaccessible facilities

Public entities must ensure that people with disabilities are not excluded from services, programs, and activities because existing facilities are inaccessible. A state or local government's programs, when each is viewed in its entirety, must be readily accessible to and usable by people with disabilities. This standard is known as "program accessibility." Public entities do not necessarily have to make each of their existing facilities accessible. They may provide program accessibility by a number of methods including alteration of existing facilities, acquisition or construction of additional facilities, relocation of a service or program to an accessible facility, or provision of services at alternate accessible sites.

Structural changes needed for program accessibility in all public facilities, including museums, should have been completed by January 26, 1995. Although the deadline has passed, museums that have not yet completed structural changes and barrier-removal projects should not relax their efforts. Make these projects a high priority to ensure program access and thereby enhance the museum experience for all visitors and volunteers.

2. Existing facilities: self-evaluation and transition plans

The concepts discussed in this section—self-evaluations, transition plans, and other administrative requirements—apply first to political subdivisions, such as states, counties, and municipalities, rather than to components of those political

entities, such as museums or zoos. Nevertheless, museum personnel should familiarize themselves with these concepts, as political subdivisions often require publicly funded museums within their jurisdiction to do their own self-evaluations and transition plans that become part of a larger plan, as well as nominate a museum ADA coordinator and decide on an effective method of resolving complaints that arise from the museum's operations.

Self-evaluations: A self-evaluation is a public entity's assessment of its current programs, activities, and services as well as the facilities, policies, and practices that affect accessibility. The self-evaluation identifies problems that may prevent or limit access and suggests solutions for those policies and practices that are inconsistent with Title II requirements.

The process involves identifying all programs, activities, and services and analyzing whether policies and practices or the physical plant adversely affect the full participation of people with disabilities. Areas that need careful examination include, among others, the following:

Physical barriers: A public entity must examine each program to determine whether any physical barriers exist. Museums must identify steps that need to be taken to enable these programs to be made accessible when viewed in their entirety. If structural changes to existing facilities are necessary, they should be included in the transition plan.

Policies and practices: A public entity must review its policies, practices, and facilities to determine whether any of them exclude or limit the participation of individuals with disabilities in its programs, activities, or services. Museums must modify such policies or practices unless they are necessary for the operation or provision of the program, service, or activity. The self-evaluation should identify policy modifications to be implemented and include complete justifications for any exclusionary or limiting policies or practices that will not be modified. It may be necessary to modify the facility if the program cannot be offered in an alternate accessible location.

Staff training programs should be reviewed to ensure that a museum's employees and volunteers are familiar with, and able to implement, policies and practices necessary for the full participation of people with disabilities. If appropriate, additional training should be provided on the needs of visitors with disabilities.

Communication: A public entity should review its policies to ensure that it communicates with applicants, participants, and members of the public with disabilities in a manner that is as effective as its communications with others. If a museum communicates with program participants and the general public by telephone, it should ensure that TTYs or equally effective telecommunication systems are used to communicate with individuals with impaired hearing or speech.

All public entities, regardless of size, should have completed the self-evaluation process by January 26, 1993. Public entities that employ fifty or more employees must retain their self-evaluations for three years. Public entities with fewer than fifty employees are not required to retain their self-evaluations, but are encouraged to do so because availability of these documents

demonstrates an entity's good faith efforts to comply with Title II requirements. The size of an entity is determined from the total number of employees (including those working part-time) who belong to that political subdivision such as a state, county, or city, not just the employees at a particular museum.

Transition plans: State or local governments that employ fifty or more people should have developed a transition plan by July 26, 1992, that sets forth the steps needed to make all structural changes necessary to achieve program accessibility. The plan should reference the architectural barriers identified during the self-evaluation process and establish timetables to complete, by January 26, 1995, all necessary barrier removal. A copy of the transition plan must be available for public inspection.

A transition plan should include, at a minimum, the following:

A list of the physical barriers in a public entity's facilities that limit the accessibility of its programs, activities, or services to people with disabilities;

A detailed outline of the methods to be utilized to remove these barriers and make the facilities accessible;

The schedule for taking the necessary steps to achieve compliance with Title II. If this time period is more than one year, the plan should identify the interim steps that will be taken during each year of the transition period, because the obligation to provide program accessibility is continuous; and

The name of the official responsible for the plan's implementation.

3. Other administrative requirements under Title II—ADA coordinator and grievance procedure:

A public entity that has fifty or more employees must designate an employee to coordinate its efforts to comply with Title II, whose name, office address, and telephone number must be publicized. The public entity must also establish and advertise the method for resolving Title II complaints that may arise from its programs, activities, and services.

C. New Construction and Alterations

The ADA requires that all new buildings and all alterations to existing facilities designed, constructed, or altered by, on behalf of, or for the use of public entities must be readily accessible to and usable by people with disabilities, if the construction or alteration began after January 26, 1992.

Newly constructed facilities and alterations to existing facilities must be designed and built in accordance with either of two accessibility standards. Title II entities can choose either the Uniform Federal Accessibility Standards (UFAS) or the ADA Standards for Accessible Design (ADA Standards).The ADA Standards must be used by all public accommodations and commercial facilities under Title III of the ADA, as discussed on pages 29. If the ADA Standards are chosen by a Title II entity, the elevator exemption, which is available to private entities under Title III, does not apply.

The entity must choose one accessibility standard to follow uniformly throughout a facility: It cannot pick and choose to follow different standards for different elements within the same facility. The option to use the UFAS as the standard

may be eliminated in the future, and when this occurs, the ADA Standards will likely become the only standard for new construction and alterations under the ADA.

Alterations may deviate from the specific ADA requirements in the accessibility standards only in rare circumstances where they would be "structurally impracticable" under the UFAS, or "technically infeasible" under the ADA Standards. These exemptions are available under both standards when load-bearing structural members are involved. Additionally, the UFAS "structural impracticability" exemption applies where the result of achieving full compliance would be an increased cost of 50 percent or more of the value of the element involved, and the ADA Standard's "technical infeasibility" exemption applies when physical or site restraints prevent compliance.

Alterations impose additional requirements under both accessibility standards. Under the ADA Standards, alterations to primary function areas (where major activities take place) trigger a "path of travel" requirement. That is, the path of travel from the entrance to the altered area and telephones, rest rooms, and drinking fountains serving the altered area, must be made accessible. A public entity need not spend more than 20 percent of the cost of the overall alteration on making the path of travel accessible. Under UFAS, if a building undergoes a "substantial alteration" (where the total cost of all alterations in a twelve-month period amounts to 50 percent or more of the value of the building), the public entity must provide an accessible entrance, accessible rest rooms, and an accessible route from public transportation, parking, streets, and sidewalks to all accessible parts of the building.

The Department of Justice's *Title II Technical Assistance Manual* contains a useful discussion of the similarities and differences between UFAS and the ADA Standards. It can be obtained through the Department of Justice ADA Information Line and ADA Homepage (See Resources.)

Both UFAS and the ADA Standards contain special provisions that apply to mercantile and restaurant facilities. Museums that have restaurants and gift shops should pay particular attention to these provisions.

Alterations to historic facilities that are qualified for protection under federal, state, or local laws are not required if the alteration would threaten or destroy the historic significance of the building. Special requirements are included in the ADA Standards (Section 4.1.7) for use when full compliance with the alteration provisions is not possible.

Historic Preservation Programs: Governmental entities that operate historic preservation programs have special program-access requirements and limitations. Historic preservation programs are programs conducted by a public entity that have preservation of historic properties as a primary purpose, for example, historic house museums.

In achieving program accessibility in historic preservation programs, a public entity must give priority to methods that provide physical access to people with disabilities. Physical access is particularly important in a historic preservation program—because a primary benefit of the program is uniquely the experience of the historic property itself. However, as discussed above, public entities are not required to take any action that would threaten or destroy the historic

significance of a historic building or facility. In cases where physical access cannot be provided because of either this special limitation or because an undue financial burden or fundamental alteration would result, alternative measures to achieve program accessibility must be undertaken, such as those described in the special topic box on page 32.

This special emphasis on making the site accessible does not apply to programs that are not historic preservation programs, but just happen to be located in historic properties. In these cases, there is no special programmatic significance attached to the program site and alternative, nonstructural methods of providing program accessibility might be acceptable. Such methods could include relocating all or part of a program, as long as these measures did not result in limiting participation of people with disabilities.

D. Other Title II Requirements

The ADA prohibits public entities involved in certification or licensing from discriminating on the basis of disability, unless the person's disability prevents him or her from meeting the essential eligibility requirements for receiving the license or certificate. If your museum issues licenses or certificates and you need more information, please contact the Department of Justice.

Transportation issues arising under Title II are covered by the Department of Transportation. Addresses and telephone numbers appear in Resources.

The ADA also prohibits public entities from retaliating against or coercing people who are exercising their rights under the statute. Retaliatory or coercive actions are themselves violations of the law.

Title II Museums

(Summary for state and local government entities)

Must ensure that individuals with disabilities are not excluded from services, programs, and activities because buildings are inaccessible or because of policies or practices, unless to do so would result in a fundamental alteration.

Are not required to take any action that would result in a fundamental alteration in the nature of the service, program, or activity or in undue financial and administrative burdens.

Must ensure equally effective communication with individuals with disabilities.

Must maintain accessible features of facilities and equipment.

Existing Facilities

State and local governments must conduct a self-evaluation of all programs and activities to identify any physical or policy barriers that may limit or exclude participation by people with disabilities.

They must choose to modify the facility, relocate the program or activity, or provide the activity, service, or benefit in another manner that meets other ADA requirements.

If modifications are done, physical changes must comply with the ADA Standards for Accessible Design (ADA Standards) or the Uniform Federal Accessibility Standards (UFAS).

Alterations

Any alteration that affects the usability of the facility must comply with the requirements of the ADA Standards (without the elevator exemption) or the UFAS to the greatest extent feasible.

New Construction

Must comply with the new construction requirements of the ADA Standards (without the elevator exemption) or the UFAS.

Administrative Requirements

For entities with 50 or more employees, the following are required in addition to the self-evaluation:

Develop a grievance procedure;

Designate an individual to oversee ADA compliance;

Develop a transition plan that catalogues the physical changes that will be made to achieve program accessibility; and

Retain the self evaluation for three years.

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Title III Museums

(Summary for private for-profit and nonprofit entities)

Must provide goods and services in an integrated setting, unless separate or different measures are necessary to ensure equal opportunity.
Must eliminate unnecessary eligibility standards or rules that deny individuals with disabilities an equal opportunity to enjoy the goods and services provided.
Must make reasonable modifications in policies, practices, and procedures that deny equal access to individuals with disabilities, unless a fundamental alteration would result in the nature of the goods and services provided.
Must furnish auxiliary aids when necessary to ensure effective communication, unless an undue burden or fundamental alteration would result.
Must maintain accessible features of facilities and equipment.

Existing Facilities (areas that are open to the public)
Must remove architectural and structural communication barriers in existing facilities where it is readily achievable to do so.
Must provide readily achievable alternative measures when removal of barriers is not readily achievable.

Alterations (all facilities)
Any alteration that affects the usability of the facility must comply with the requirements of the ADA Standards to the greatest extent feasible.

New Construction
Must design and construct new facilities to comply with the ADA Standards.

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Direct Threat and Fundamental Alteration

Museums don't have to do anything that would pose a "direct threat" to the health or safety of patrons or staff or result in a "fundamental alteration" to the programs, services or collections. A "direct threat" is a significant risk to the safe operation of the facility or to the health or safety of others that cannot be eliminated by modification of policies, practices, or procedures, or by the provision of auxiliary aids or services. A "fundamental alteration" is a modification that is so significant that it alters the essential nature of the goods, services, facilities or accommodations offered. Before excluding a person with a disability or refusing to grant a specific request for accommodation, the museum staff must determine whether there is a significant health or safety risk or a fundamental alteration to the program, goods, services or the collection that cannot be eliminated by reasonable modifications to the museum's policies, practices, or procedures or by the provision of appropriate auxiliary aids or services.

The determination that someone poses a "direct threat" should be based on the best available objective evidence rather than generalizations or stereotypes. For instance, a museum does not have to admit a person with active infectious tuberculosis, since other patrons or staff could become infected; but the museum would have to admit someone living with HIV or AIDS, as others cannot get HIV through casual contact. When a fundamental alteration occurs, the entity must ensure that individuals with disabilities receive the benefits, goods or services of the program or entity through alternate methods that are not a fundamental alteration.

Generally, museums, including zoos and other places of exhibition must permit the use of a service animal by an individual with a disability. Where animals are exhibited or where a collection may be at risk, any limitations including the use of service animals must be shown by the museum or zoo to be the result of a "direct threat" or "fundamental alteration" in the nature of its program or activity. For example, in a petting zoo, limitations might be set on a case-by-case basis, if some animals have adverse reactions to such things as unusual sounds or to service animals.

Each facility needs to make its own analysis of its circumstances and determinations are very likely to differ from facility to facility depending on the types of collections, programs and configurations of the facilities. A zoo that wishes to restrict service animals in any way should make a careful assessment of each area to determine where safety concerns justify restricting the access of persons with their service animals. Unsubstantiated fears about potential risks will not suffice to justify the exclusion of service animals from areas open to the general public.

Museums may not refuse to serve an individual with a disability because of limitations on coverage or rates in its insurance policies. Any exclusion must be based on legitimate safety concerns, rather than on the terms of an insurance contract.

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VIII. Title III: Public Accommodations, Commercial Facilities, Courses and Testing Entities

Title III applies to businesses and nonprofit organizations that provide goods and services to the public. Private entities, whether businesses or nonprofit organizations, are public accommodations if they own, lease (or lease to), or operate facilities that affect commerce and fall within one of twelve categories. These categories include, among others: places of public display or collections such as museums, libraries, and galleries; places of public gathering such as auditoriums, convention centers, and lecture halls; places of recreation such as parks, zoos, and amusement parks; and establishments serving food or drink such as restaurants and bars. Title III also covers commercial facilities that are not places of public accommodation such as private offices, warehouses, and manufacturing facilities.

Religious entities and some private clubs are exempt from Title III.

For example, a private museum operated by a religious organization does not have to comply with Title III, while a private museum without religious affiliation displaying religious artifacts does have to comply with Title III.

Private Clubs

Some private clubs are exempt from Title III. A private club is exempt if it is exempt from Title II of the Civil Rights Act of 1964, which prohibits discrimination on the basis of race, color, and national origin. Private clubs lose their exemption to the extent that they are made available for use by nonmembers as places of public accommodation. Courts have been most likely to find private-club status in cases when:

1. Members exercise a high degree of control over club operations;
2. The membership selection process is highly selective;
3. Substantial membership fees are charged;
4. The entity is operated on a nonprofit basis; and
5. The club was not specifically founded to avoid compliance with federal civil rights laws such as the ADA.

A. General Prohibition of Discrimination/Requirement for Integrated Settings:

Under Title III, museums and other public accommodations may not discriminate against people because they have disabilities. People with disabilities cannot be denied the full and equal enjoyment of the goods, services, facilities, privileges, advantages, or accommodations offered by a public accommodation. That is, public accommodations must ensure equal opportunity for individuals with disabilities.

There are several broad principles of nondiscrimination. These include the equal opportunity to participate, the equal opportunity to benefit, and inclusion in the most integrated setting appropriate.

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Example: A theater cannot refuse to admit a person with mental retardation to a performance merely because of his or her mental disability.

People with disabilities must not be limited to certain programs, except in cases where fundamental alteration or direct threat would occur.

Example: If, on a weekly basis, a zoo gives a tour using a special lift-equipped van for people with mobility impairments, a person who uses a wheelchair may still prefer to tour the zoo at another time.

Separate programs are permitted where necessary to ensure equal opportunity, but individuals with disabilities cannot be excluded from the regular program or required to accept special services or benefits.

Example: People who are blind cannot be excluded from standard museum tours despite the existence of a separate touch tour of museum sculpture.

Establishing a special program designed to enhance the experience of people with specific disabilities does not fulfill the overall requirements for access. The museum may still have obligations to provide an opportunity for that individual to benefit from the regular program. The fact that a separate program is offered may be a factor in determining the extent of the obligations under the regular program, but only if the separate program is appropriate to the needs of the particular individual with a disability.

Example: If a museum provides a sign-language interpreter for one of its regularly scheduled tours, the availability of the signed tour may be a factor in determining whether it would be an undue burden to provide an interpreter for a deaf person who wants to take the tour at a different time. However, the availability of the signed tour would not affect the museum's obligation to provide effective communication. This obligation might include providing upon request an interpreter for a different tour or providing a different auxiliary aid. Examples include an assistive listening device for an individual with impaired hearing who does not use sign language or printed descriptive materials. Even the smallest museums should be able to develop printed materials from existing program brochures and training materials for volunteers and docents.

B. Specific Requirements Applicable to Public Accommodations:

1. Eligibility criteria

Museums and other public accommodations cannot impose eligibility criteria that tend to screen out people with disabilities from the full and equal enjoyment of all parts of the museum experience. Criteria that are necessary for the safe operation of the museum are acceptable, but they must be based on real risks, not speculation, stereotypes, or generalizations about people with disabilities.

Example: Museum personnel would violate the ADA if they required people with mental retardation to be accompanied by nondisabled persons based on the staff's unsubstantiated belief that people with mental retardation cannot tour the museum independently.

Example: A docent program cannot exclude a person who uses a wheelchair based on the program director's assumption that anyone who uses a wheelchair

could not control unruly children on tours, thus potentially endangering objects on display.

2. Reasonable modifications of policies, practices, and procedures

A public accommodation must reasonably modify its policies, practices, or procedures to avoid discrimination. If the public accommodation can demonstrate, however, that a modification would fundamentally alter the nature of the goods, services, facilities, privileges, advantages, or accommodations it provides, it is not required to make the modification.

Example: A museum store is holding an event at which a famous artist will sign posters of her work. The museum has a standard policy that signed posters are only available to those who attend the event in person; it will not take phone orders for them. The museum would have to modify its policy for someone who uses a wheelchair and who cannot enter the museum because the museum entrance is inaccessible.

3. Effective communication—auxiliary aids and services

When required to ensure effective communication, a public accommodation must make available appropriate auxiliary aids and services. The type of aid or service necessary will vary with the length and complexity of the communication involved, as well as with the communication skills and experiences of the person with a disability. The public accommodation is not required to provide a particular auxiliary aid or service if it would fundamentally alter the nature of the service provided or if it would pose an undue financial or administrative burden. Providing an auxiliary aid or service is not necessary if it would jeopardize the safe operation of a public accommodation. Surcharges cannot be imposed to recover the cost of providing an auxiliary aid or service. See the special topic box on Surcharges.

A fundamental alteration is a modification that is so significant that it alters the essential nature of the goods, services, facilities, privileges, advantages, or accommodations offered.

An undue burden is a significant difficulty or expense, relative to factors set forth in the Readily Achievable, Undue Burden special topic box on page 26. Undue burden is not calculated by measuring the cost of an auxiliary aid or service against the income derived from the person with a disability, such as admission tickets or tuition.

Surcharges

No entity, whether governmental or private, may impose surcharges on persons with disabilities to recover any costs associated with ADA compliance. For instance, when a museum fulfills its legal obligation to make available a sign-language interpreter to provide effective communication for a conference attendee who is deaf, the museum cannot require the deaf patron to reimburse the museum for the interpreter's fee. Instead, the fee should be treated as an overhead expense covered by all admission fees.

Readily Achievable and Undue Burden

Readily achievable means easy to accomplish and able to be carried out without much difficulty or expense. When considering whether barrier removal is readily achievable, museum officials should consider the following factors:

1. The nature and cost of the removal;
2. The museum's overall financial resources; the number of museum employees; the effect on expenses and resources; legitimate safety requirements necessary for safe operation, including crime prevention measures and steps necessary to protect the integrity of the art or artifacts on display; or any other impact of the action on the museum's operation;
3. The geographic separateness and the administrative or fiscal relationship of the museum to any associated museums or parent entity;
4. If applicable, the overall financial resources of any parent entity or associated museums; the overall size of the parent entity or association with respect to the number of its employees; the number, type, and location of its facilities; and
5. If applicable, the type of operation or operations of any parent entity or association, including the composition, structure, and functions of the work force of the parent entity or association.

Undue burden is defined as a significant difficulty or expense. The factors listed above should be used in considering whether something is an undue burden.

Meeting the "undue burden" standard requires a greater level of effort to provide appropriate auxiliary aids and services than does the "readily achievable" standard for removing barriers in existing Title III museum facilities. Readily achievable is, in other words, a lesser standard than is undue burden.

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Example: A person who is blind wants to know the price of several items in a museum shop. The museum is not required to provide Braille price tags. Instead, a store clerk can provide price information verbally to the patron. The clerk does not have to tour the store with the patron if doing so would cause him to leave the store's cash register unattended.

Example: It may be an undue burden for a small private historic house museum operating on a shoestring budget to provide a sign-language interpreter for a deaf individual wishing to participate in a tour. Providing a written script of the tour, however, is an alternative that would be unlikely to result in an undue burden.

Example: A private museum with a large endowment holds a series of ten three-hour classes on Etruscan art. A person who is deaf and who uses sign language enrolls in the class and pays the standard tuition. A month before the course begins, the student requests that the museum provide a qualified sign-language interpreter for the course. The museum director meets with the student and provides a sign-language interpreter for the meeting. After taking into account the fact that the course is long and involved and that the student typically relies on sign language in other educational settings, the director decides that there is no other way to communicate effectively with this person in the context of the course. The museum provides interpreter services to the student, free of charge. Costs for providing auxiliary aids and services can be recovered through fees paid by all participants.

4. Readily achievable barrier removal and alternatives

The ADA requires public accommodations to remove from the public areas of existing facilities barriers to access for persons with disabilities, when doing so is readily achievable. Existing facilities are those occupied before January 26, 1993. Barriers are physical elements of a museum that impede access by people with disabilities, including far more than the obvious impediments such as steps and curbs preventing access by people who use wheelchairs. Examples of such barriers include telephones, drinking fountains, mirrors, and paper-towel dispensers that may be mounted too high for easy use by people who use wheelchairs. People who have limited use of their hands may not be able to use conventional round doorknobs. Rest-room supplies may block easy access to sinks for people who use wheelchairs. It may be difficult for people who are blind to use elevator control buttons unless they have raised markings. Smoke and fire alarms may not provide adequate warning for people who are deaf unless they are accompanied by visual alarm signals such as flashing lights.

Barrier removal is readily achievable when it is easily accomplished and carried out without much difficulty or expense. For a discussion of the factors to be considered when determining what actions are readily achievable, see the special topic box on page 26.

Under the readily achievable barrier removal standard, privately owned or operated museums may be required to take such actions as installing ramps, making curb cuts into existing sidewalks, restriping parking spaces, repositioning exhibits, widening doors, eliminating

turnstiles or providing an alternative accessible path, changing doorknobs, installing grab bars in toilet stalls, insulating sink pipes to prevent burns, repositioning telephones and towel dispensers, and installing paper-cup dispensers at inaccessible water fountains. Private museums generally do not have to retrofit existing buildings by adding elevators, as it is usually a difficult and expensive process. There are special provisions for qualified historic buildings, which are discussed in the special topic box on page 32.

Barrier removal measures must comply with the ADA Standards, except when doing so is not readily achievable. In such cases, barrier removal measures may be taken that do not fully comply with the ADA Standards, so long as the measures do not pose a significant risk to the health or safety of people with disabilities or others. However, barrier removal is an ongoing obligation, dependent on resources that may change yearly.

Example: A small private museum has an entrance that has a clear opening only 26-inches wide. Because of very tight space constraints, the museum's board is unable to extend the opening to the full 32-inch clearance required for alterations under the ADA Standards. No other accessible entrance exists. Under these circumstances, it is permissible for the museum to enlarge the entry to provide a clear opening only 30 inches wide.

5. Seating in assembly areas

Museums must pay special attention to barriers in assembly areas with fixed seating such as theaters, lecture halls, and conference rooms. If it is readily achievable, such assembly areas must include level, clear floor space for people who use wheelchairs. The areas designated for people who use wheelchairs should be adjacent to fixed seating so that they can sit with their friends or family members who accompany them to the event. The locations for people who use wheelchairs must adjoin an accessible route that also serves as a means of egress in an emergency. Accessible seating areas should provide viewing options and choices of admission prices comparable to those offered to other patrons. In areas with fixed seating for more than 300 people, these locations should be dispersed throughout the seating area when readily achievable.

6. Transportation barriers

Public accommodations that provide transportation as service to their patrons (but are not primarily engaged in the business of transporting people), such as zoo tour buses, are covered by the Department of Justice's Title III regulation. Museums and zoos must ensure that this service is accessible to people with mobility impairments when it is readily achievable to do so. Museums and other public accommodations that provide public transportation services must also comply with the Department of Transportation's ADA regulation. For more information about the transportation provisions, contact the Department of Transportation. (See Resources.)

C. Examinations and courses

Private entities, including museums, that offer examinations or courses related to applications, licensing, certification, or credentialing for secondary or post-secondary education, professional, or trade

purposes must offer them in a place and manner accessible to people with disabilities, or offer alternative accessible arrangements. These obligations are in addition to any requirements that otherwise apply to public accommodations.

Examinations must be designed and administered in a way that ensures that the results accurately reflect people's aptitudes and achievement levels rather than their disabilities (except, of course, where those skills are the factors that the examination purports to measure).

The providers must also ensure effective communication through the availability of appropriate auxiliary aids and services when necessary. Examples include Braille, large print, audio tapes, qualified readers or scribes, and sign-language interpreters. Entities must also make reasonable modifications in policies, such as offering extended time to test-takers who have learning disabilities, or providing a quiet testing location to someone who has an attention deficit disorder.

Reasonable documentation can be required to ensure that an applicant has a legitimate need for a particular modification, auxiliary aid, or service for a course or exam.

Resources

To learn more about specific ADA requirements you should review the following:

Title II: State or Local Government Museums:

Title II Regulations
Title II Technical Assistance Manual
ADA Standards or UFAS

Title III Private Museums:

Title III Regulation (with ADA Standards)
Title III Technical Assistance Manual

Copies are available from the ADA Information Line. (800) 514-0301 Voice, (800) 514-0383 TTY

D. New Construction and Alterations

1. The Americans with Disabilities Act Standards for Accessible Design

Generally speaking, museum facilities covered by Title III (privately owned or operated, including private and nonprofit 501(c)(3) institutions) will be subject to the Americans with Disabilities Act Standards for Accessible Design (Standards), as well as any applicable state, local, or regional building codes. If the museum receives any form of federal financial assistance, it also may have to comply with the Uniform Federal Accessibility Standards (UFAS). Museums covered by Title II (state or local governments) must comply with either the UFAS or the ADA Standards. The option to use either the UFAS or the ADA Standards may be eliminated soon. These two standards contain minimum specifications for access and cover, in most cases, major functional spaces in buildings, accessible routes, and other essential features or elements. In some instances, the requirements specify a percentage of features to be made accessible, such as at least one toilet stall per rest room.

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The UFAS and the ADA Standards are similar in many ways and share the same basic format. This book discusses requirements from the ADA Standards. If a government-owned museum chooses to follow the UFAS under Title II, it should also consult the ADA regulations, the UFAS, and the Title II Technical Assistance Manual.

The Americans with Disabilities Act (ADA) is a federal civil rights law. It takes precedence over other less stringent state and local laws. All new and renovated buildings, with few exceptions, must meet the requirements for accessibility found in the ADA Standards. When several standards and codes apply, the one that is the most stringent and requires the most accessibility for any given feature should be followed. However, it is often not easy to determine which is the most stringent specification. In practice, builders often follow the one having the most rigorous approval and enforcement process.

Both the ADA Standards and the UFAS cover new construction and renovations as well as site design and historic facilities. Both treat a renovation much the same as new construction, in that they require any element or feature that is built, modified, or upgraded to comply with the new construction specifications for that element. The ADA Standards have additional requirements when an area containing a primary function is altered. These requirements cover the path of travel to the altered area and include the rest rooms, drinking fountains, and public telephones serving the area. Making the path of travel accessible is required to the extent that the cost does not exceed 20 percent of the total cost of the alteration (See ADA Standards 4.1.6(2) and §36.403.)

The ADA Standards are organized according to elements such as parking, doors, curb ramps, fixed seating, and toilet stalls. Also included are requirements for controls and operating mechanisms, maneuvering spaces, and reach ranges for people with disbilities. These requirements must be applied to museums and museum spaces, as well as to exhibitions that include these elements and features. The ADA Standards also have requirements that are applicable when designing ancillary and support spaces in museums including gift shops, restaurants and employee areas.

2. New construction

Title III requires that all new construction of places of public accommodation, as well as all other commercial facilities (warehouses, manufacturing plants, and private office buildings), be readily accessible to people with disabilities. The provisions for new construction apply to buildings first occupied after January 26, 1993. A building is readily accessible when it meets or exceeds the level of access provided by the ADA Standards. These are minimum requirements that provide basic access for people with various disabilities. New buildings must be designed and constructed to comply with the ADA Standards, unless it is structurally impracticable to do so. The ADA Standards which are part of the Title III regulations are available from the Department of Justice's ADA Information Line and the Access Board. (See Resources for telephone numbers and addresses of these federal agencies.)

The ADA Standards contain requirements for public and common-use spaces. Generally, there must be at least one accessible route going from public transportation stops, streets, and parking, to and through all parts of a building that are normally used by staff, service personnel, and

the public. Many building features must also comply with the ADA Standards, such as accessible parking spaces, ramps, stairways, signs, toilets, drinking fountains, alarms, interior doors, service counters, etc. In addition to setting out what the building feature's actual measurements should be and what they should look like, the ADA Standards also specify the number of elements and spaces (for example, parking spaces, toilet stalls, and drinking fountains) that must be made accessible in order for a museum to be readily accessible. In most cases, these requirements are based on the theory that if an element or space is provided, at least one must be accessible. Certain spaces where museum staff and visitors do not normally go may not need to be accessible. These include security observation galleries and nonoccupiable spaces like elevator pits, elevator penthouses, and piping or equipment catwalks.

Temporary structures and exhibit areas must also comply with the ADA Standards.

Elevators are required in all newly constructed museums, except those that are under three stories or with less than 3,000 square feet per floor.

Incorporating the cost of accessible features into the design and construction of a new museum is generally not expensive; usually it is less than 1 percent of construction costs. Most entities find that this is a comparatively small price in relation to the benefits of making their programs, goods, and services available to all people in their communities, without regard to disability.

3. Alterations

All alterations that could affect the usability of a facility must be accessible to the maximum extent feasible. If during renovations a doorway is being relocated, the new doorway must be wide enough to meet the new construction standard for accessibility set forth in the ADA Standards. The alteration requirements are based on the new construction requirements with some limitations for existing conditions. When alterations are done to a primary function area (such as an exhibit

Ongoing Obligations

Meeting the obligations of the ADA must be an ongoing concern for museum directors and staff. For Title II museums, the program accessibility requirements are ongoing, as are the requirements to provide effective communication. For Title III museums, the obligation to remove barriers when it is readily achievable to do so is also an ongoing responsibility. For all museums, an alteration, reconstruction, addition or, new construction all have ADA requirements. With the help of resources such as this manual, local disability organizations, and additional materials listed in the Resources section, these obligations can be successfully achieved over the long term. Museum officials should also understand how local, state, and federal laws affect each other. All museums must comply with the ADA. They also may have to take additional steps to comply with state or local laws, such as those with stringent building codes that provide a greater level of access than is provided by the ADA Standards.

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Alterations and "Readily Achievable" in Historic Buildings

The ADA Standards have special provisions for alterations that apply only to qualified historic properties. A qualified historic property is one that is listed or is eligible for listing on the National Register of Historic Places, or properties designated as historic under state or local law.

Alterations to historic properties must comply with the alteration requirements in the ADA Standards to the maximum extent feasible. The historic property provisions require the normal alterations standards to be followed unless doing so would threaten or destroy the historic significance of the building. Under these circumstances, alternative requirements may be used. These alternatives provide a very minimal level of access. For example, if necessary to preserve the historic integrity of a building, ramps can be steeper, the accessible entrance does not have to be the main entrance, there may only be an accessible route from one site access point such as the parking lot, and accessible routes are only required on the level of the accessible entrance. (See ADA Standards 4.1.7. In the rare instances when complying with these minimal alternative requirements will threaten or destroy the historic significance of a building, structural changes are not required. Alternate methods can be used to provide access, such as modifying policies, providing curb-side services, or providing services in an alternative accessible location.

Example: A historic house is being altered to be used as a museum restaurant. The architect designing the project concludes that most of the normal standards for alterations can be applied during the renovation process without threatening or destroying historic features. There appears, however, to be a problem if one of the interior doorways is enlarged to allow access to the main dining area, because historic decorative features on the door would be destroyed. After consulting the ADA Standards and the State Historic Preservation Officer, the architect determines that the appropriate historic body with jurisdiction over the particular historic home is the county Advisory Council on Historic Preservation. The architect sets up a meeting with the Council, to which a local disability group is invited.

At the meeting, the participants agree with the architect's conclusion that the normal alterations standards cannot be applied to the interior door. They then review the special alternative requirements, which allow the use of secondary entrances and doorways not used by the general public. The meeting's participants determine that it is not even possible to apply the alternative minimal requirements and create secondary access to this room without destroying other historic decorative elements.

In this situation, the museum restaurant is not required to enlarge the interior doorway. Instead, the museum modifies the usual operational policies and provides alternative access to the activities offered in the inaccessible room by making a video presentation of the items within the inaccessible room and by providing food service at the accessible outdoor dining area and at the curb for carry-out. The video can be viewed in a nearby accessible room in the museum. However, all other accessibility requirements for the facility are provided.

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space, museum store, lecture hall, or the dining area of a cafeteria), an accessible path of travel to the altered area must also be provided, and the parking spaces, rest rooms, telephones, and drinking fountains serving that area must also be made accessible. These additional path-of-travel accessibility alterations are required only to the extent that the added accessibility costs do not exceed 20 percent of the cost of the total alteration. The Title III regulations provide guidance on creating a priority for path-of-travel alterations.

For some alterations, it may be necessary to follow the special technical provisions when physical conditions do not permit compliance with the new construction requirements. (See ADA Standards 4.1.6 (3).)

In addition to the alterations provisions, there are special requirements that apply to historic properties. These are set out on page 32 in the special topic box on that subject. (See ADA Standards 4.1.7.)

IX. Enforcement

A. Title I

The employment provisions of the ADA are enforced under the same procedures now applicable to race, color, sex, national origin, and religious discrimination under Title VII of the Civil Rights Act of 1964, as amended, and the Civil Rights Act of 1991. Complaints regarding actions that occurred on or after July 26, 1992, may be filed with the Equal Employment Opportunity Commission or designated state human rights agencies. Available remedies include hiring, reinstatement, promotion, back pay, front pay, restored benefits, reasonable accommodation, attorneys' fees, expert witness fees, and court costs. Compensatory and punitive damages also may be available in cases of intentional discrimination or where an employer fails to make a good-faith effort to provide reasonable accommodation.

B. Title II

Private individuals may bring lawsuits to enforce their rights under Title II and may receive the same remedies as those provided under Section 504 of the Rehabilitation Act of 1973, including court orders to stop the discriminatory conduct, damages, and reasonable attorneys' fees. Individuals may also file complaints with eight designated federal agencies, including the Department of Justice and the Department of Transportation. The Department of Justice has the responsibility of forwarding complaints to the appropriate agencies. Hence, people who do not know which agency will investigate their claims are urged to file them with the Department of Justice. (See Resources.)

C. Title III

Private individuals may bring lawsuits in which they can obtain court orders to stop discrimination. Individuals may also file complaints with the Department of Justice, which is authorized to bring lawsuits in cases of general public importance or where a "pattern or practice" of discrimination is alleged. In these cases, the Department may seek monetary damages for private individuals and civil penalties for the government. Civil penalties may not exceed $50,000 for a first violation or $100,000 for any subsequent violation.

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Chapter 2—A Strategy for Accessibility

I. Overview

Throughout the country, museums are making their programs and facilities accessible to people with disabilities as they comply with the requirements of the American with Disabilities Act (ADA). Some museums have gone beyond the letter of the law by actively incorporating the spirit of the law through the principles of universal design. After meeting the minimum requirements of physical and communication accessibility, progressive museums are devising innovative strategies to make their programs available to the broadest spectrum of visitors. These museums realize that a critical part of this process is staff understanding of the needs of the museum's visitors with disabilities. This understanding results from open dialogue and training. The short-term goal is compliance with the law's minimum requirements. The longer-term, universal-design goal is totally accessible programs and facilities at every level.

This chapter presents a comprehensive "Building Block" process that museums may use to evaluate, plan, implement, and advertise accessibility at their sites. When the building blocks are used together they build an over arching accessibility system that can help insure ADA compliance. Some examples or portions of the process may be impractical or unnecessary for smaller museums, but the concepts can still be valuable in developing methods to implement and maintain accessibility in any program. Museums should also note that while some of the steps are those the ADA explicitly requires, others simply provide guidance in improving the accessibility of museum programs, goods, services, and facilities. The ADA's legal requirements are set out in Chapter 1 of this book.

The short-term goal is compliance with the law's minimum requirements. The longer-term, universal-design goal is totally accessible programs and facilities at every level.

The task of establishing new policies and practices for accessibility or revising old ones requires creativity and commitment, but need not be daunting. Coordination, communication, and participation are essential ingredients. This chapter recommends a building block process that involves all levels of museum staff and gathers input from visitors with disabilities. The process is a practical approach based on the experiences of many museums that have developed compliance programs for the ADA and other federal accessibility laws. This flexible process recognizes the diversity of programs and services museums offer, the collections they exhibit and protect, and their actual financial and human resources.

Nine Building Blocks to Accessibility

Although this building block process is comprehensive, not all of the building blocks are explicitly required by the ADA. ADA requirements are shown in bold text. A ★ indicates a Title II requirement. A ■ indicates a Title III requirement.

★ 1. **Include a statement of commitment to accessibility in the museum's general policy or mission statement.**

★ 2. **Designate an accessibility coordinator,** either an individual or group.

★ 3. **Obtain input from people with disabilities.** Organize an Accessibility Advisory Council of people with disabilities.

4. Train staff on accessibility, the ADA, and strategies for serving all visitors.

★ 5. **Conduct a review of facilities and programs** to identify existing barriers and discriminatory policies or practices.

6. Implement short and long term institution-wide accessibility including: ★ **program accessibility,** ■ **barrier removal,** ■ ★ **effective communication and** ■ ★ **new construction and alterations.**

7. Promote and advertise accessibility in the museum.

★ 8. **Establish a grievance process.**

■ ★ 9 **Conduct an ongoing review of accessibility efforts.**

II. The Nine Building Blocks to Accessibility

1. Accessibility Statement

No accessibility effort will be successful without the full support and participation of the museum board and director. Embracing the concept of accessibility is essential at the highest levels of the museum, as well as among all support staff.

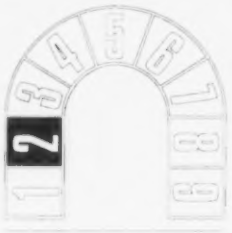
The best way to articulate a museum's real commitment to accessibility is to include or add an accessibility policy statement or declaration within the museum's overall mission statement. The language and spirit of the access statement should affirm that the institution welcomes people with disabilities and subscribes to the goal of providing access to the institution's programs, goods, services, and facilities. This is similar to the Title II requirement for a notice to the public. (See the *Title II Technical Assistance Manual*, Section 8.4000.) An institutional philosophy of commitment to accessibility, as articulated

Embracing the concept of accessibility is essential at the highest levels of the museum, as well as among all support staff.

in the access statement, can be integrated into all museum activities: its policies, guidelines, plans, budgets, meetings, conferences, panels, and community outreach. Museums can further demonstrate this attitude by including people with disabilities on the staff, board, and advisory council.

The key players in the design and implementation of a successful accessibility policy are the accessibility coordinator, the museum director, and the museum board. Additionally, museums can appoint a separate advisory council or committee to serve in a consulting capacity on accessibility-related issues (See building block no. 3: "The Accessibility Advisory Council" on page 38.) This is similar to the Title II requirement for a responsible employee. (See the *Title II Technical Assistance Manual*, Section 8.5000.)

2. Accessibility Coordinator



The accessibility coordinator's role is typically delegated to a single individual whose formal job responsibilities may relate solely to facilitating access within the museum at large. In many museums, the role of accessibility coordinator could, however, be just one of several duties an individual carries out within the museum. This knowledge can be acquired through training or experience. Job qualifications include knowledge of disabilities and experience with accessibility issues.

Another option is to delegate this role to a group of employees, each of whom serves as resident "expert" for a particular accessibility goal, such as coordinating the museum's facility review, coordinating effective communications and auxiliary aids and services, or developing the staff training program. For the group method to work most effectively, one individual should be given responsibility for overall coordination.

The role of the accessibility coordinator should not be tied to the concerns of a specific museum department or collection. Rather, the coordinator's decisions should affect the design and implementation of programs and services throughout the museum.

The primary task of the accessibility coordinator is to oversee the implementation of an overall accessibility program such as the Nine Building Blocks to Accessibility. As is apparent from the following list, these duties are considerable. Thus, it is important for this individual or group to have a leadership position within the museum and the authority to delegate responsibilities.

The accessibility coordinator should, at a minimum:

Serve as an in-house accessibility consultant and staff liaison on a daily basis for all museum exhibits, programs, activities, and events. This requires familiarity and experience with accessibility issues and laws, the applicable accessibility standards (the ADA Standards or the Uniform Federal Accessibility Standards) and methods to provide effective communication. (See Chapter 1.)

Have available accessibility resources and the use of auxiliary aids, services, and community resources, and museum-specific knowledge about exhibit design and programs.

Educate staff about accessibility. Tasks may include: developing instructional materials; organizing and implementing ongoing access training and keeping staff apprised of new developments that may affect their areas of responsibility; arranging for staff training. (State or regional arts organizations often offer accessibility conferences or other museum-training programs on access topics.)

Coordinate the museum's review process and assist with the formulation of a plan to modify existing policies, remove barriers, and ensure effective communication. See "The Review Process" and "Planning for Physical Modifications" in the following sections.

Oversee the implementation of the museum's short- and long-term plans, including program accessibility or barrier removal for existing programs and facilities, providing effective communication throughout the institution by acquiring auxiliary aids, providing accessible formats as needed, and moving toward accessibility if not universal design in the design and construction of altered and new facilities and exhibitions. This often includes working with the museum board in the capital planning and budgeting process.

Handle all constituent complaints and grievance procedures concerning access at the museum.

Actively solicit people with disabilities to be on the staff, board, and other institutional committees.

Work with the museum's director and board, who must be involved in overall access planning and implementation at every level. This involvement is especially important if resources must be budgeted to modify existing structures, plan for new construction, and provide appropriate communication aids and services. By working with renovation, planning or master planning teams, accessibility can be increased at little or no cost when aging elements are replaced or new facilities are planned. The director and board should work closely with the accessibility coordinator, who will be most familiar with the museum's access needs. The accessibility coordinator, director, and board may also need to establish an advisory council and consult outside accessibility experts in assistive technology, communication aids, or design of accessible facilities.

All staff—volunteers, paid staff, board members, and outside consultants—need to become familiar with accessibility issues.

3. Accessibility Advisory Council

An advisory council can be a highly effective resource in creating an accessible museum environment. The accessibility advisory council may be specially appointed or may be an existing council with additional responsibilities. It can provide input on a wide array of issues from evaluating current programs to consulting on new initiatives. In small museums, the museum board or local disability group, such as a Center for Independent Living, sometimes assumes the role of the advisory council. Although some council members can often be found in the local community, museums may need to look further afield for specific expertise to fulfill the duties listed below. An accessibility advisory council may be part of the input and review required under Title II for self-evaluations. (See the *Title II Technical Assistance Manual* Section 8.2000.)

Role of the Advisory Council

The council may provide expert advice to the accessibility coordinator, director, and museum board on the institution's policies and practices regarding physical, programmatic, and communication accessibility and recommend specific action for increased accessibility. Depending on its composition, the council could help:

Evaluate the accessibility of a museum's facilities, programs, and services;

Develop or comment on the museum's access policy and the museum's plan of action;

Provide technical assistance with accessibility-modifications fund-raising, the use of technical aids and services, knowledge of local services and products, and testing the usefulness of accessibility enhancements;

Participate in staff training seminars, conference panels, and workshops; and

Serve as a resource/referral/outreach body.

Composition of the Accessibility Advisory Council

Advisory councils typically comprise people who have disabilities themselves and/or represent people with disabilities. Council members should be selected because of their knowledge, experience, or interest in issues affecting how people with disabilities use museums. Ideally, the point of view of visitors with disabilities should be represented by persons who themselves have disabilities. Council members should reflect varied points of view on disability issues and know about disabilities other than their own.

A representative advisory council could be made up of:

Visitors with disabilities who frequently come to the museum and are familiar with the institution, accessibility problems, and possible solutions;

Community leaders with disabilities who know state and local accessibility legislation;

Business and technology experts for short-term access goals, such as researching, purchasing, and installing assistive listening systems for people with limited hearing;

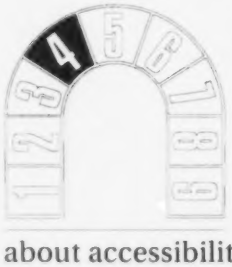
Professionals from service organizations that work with people with disabilities and/or representatives from various local disability organizations; and

Museum personnel (including the director, safety officers, curators, animal keepers, horticulturalists, etc.) who are involved in making decisions about priorities, expenditures, planning improvements, etc.

From the beginning, the museum should let the council members know what is expected of them. For instance, the policy should state: how many meetings members are expected to attend; who their liaison is within the museum; how many training sessions they may be requested to assist; and how their recommendations will be presented to a department or board. To be effective, the institution should have clear procedures for reviewing and implementing recommendations of the advisory council. Ultimately, it is up to the museum to determine who has authority to make final decisions based on these recommendations.

All meetings council members attend (for example, board meetings and training sessions) should take place in accessible locations. Museums also need to budget for any auxiliary aids or services needed to ensure effective communications with council members with disabilities (for example, assistive listening devices, interpreters, readers). Unless their job at the museum or other organization requires participation, council members should get the same consideration given to other museum council members or unpaid consultants.

4. Staff Training



All staff—volunteers, paid staff, board members, and outside consultants—need to become familiar with accessibility issues. Training museum staff about accessibility is essential. As many museums have found, good staff education is the single most cost-effective step toward fulfilling the goal of making the

Staff Should Be Trained to Be Sensitive to the Use of Service Animals

The ADA requires public and private museums and zoos to allow service animals to accompany visitors with disabilities. (See page 22.) Service animal means any guide dog, signal dog, or other animal trained to perform tasks for the benefit of an individual with a disability, including, but not limited to, guiding individuals with impaired vision, alerting individuals with impaired hearing to intruders or sounds, providing minimal protection or rescue work, pulling a wheelchair, or fetching dropped items.

entire museum accessible. Whether meeting the public on a day-to-day basis as a docent or designing an exhibit behind the scenes, all museum jobs have an accessibility component. Regard for the inclusion of diverse audiences is not just the accessibility coordinator's responsibility.

Museums should train staff on a regular basis. Initial training should be implemented to educate existing staff and assist with the evaluation process. Ongoing training should refresh existing staff and educate every new employee or volunteer on this subject.

If handled properly, staff training enables everyone to "buy into" and actively participate in the museum's mission to serve all populations. The goals of accessibility training should be to:

Break down any attitudinal barriers between staff (including volunteers) and people with disabilities.

Provide specific and accurate information on the needs of people with disabilities.

Educate the staff concerning the museum's legal responsibility to not discriminate against people with disabilities and to comply with accessibility laws—this includes familiarization with such key concepts as:

- program accessibility for Title II entities
- effective communication
- integration versus segregation
- accessible construction criteria;

Develop staff expertise on various accessibility-related solutions to foster a team effort.

Developing Training on Accessibility

Staff training should encourage everyone at the museum to become comfortable with the concepts of accessibility. By making access training an ongoing component of all educational efforts, accessibility becomes "normal" and more easily implemented. For instance, museums can:

Include access instruction in formal staff training. This should outline the museum's access philosophy and policies and include specific disability information.

Present accessibility updates at staff meetings. For example, staff can conduct an "accessibility critique" of plans for a new exhibition or brochure, or raise concerns about a tour design. Also, staff can review accessibility complaints received by the museum and work with the accessibility coordinator and advisory council to act as a sounding board that reacts to or suggests appropriate solutions.

Provide training for a group working on a new exhibition or for people planning an addition to the building.

Provide staff opportunities to attend off-site training seminars on disability awareness, recent access issues, and new technology.

Institute ongoing, museum-wide accessibility seminars to make all staff "accessibility savvy." These seminars may include general training by advisors or outside consultants, or specific, practical training sessions. For example, staff could learn about assistive technology from a vendor demonstrating various audio loop systems, or an interpreter who helps them practice audio descriptive techniques.

Keep staff regularly informed by internal electronic mail and/or memos.

The extent of accessibility training usually depends on the institution's size and staff. Large museums may be able to offer intensive, all-day seminars on disability issues and send representatives to conferences, workshops, and management seminars on the subject. Small museums may find it more efficient to organize training opportunities with other local museums or to bring in outside consultants to offer expertise on special topics. All museums can seek assistance from state and local arts and vocational-rehabilitation agencies that sponsor access training and provide referral services. (See Resources.) As mentioned earlier, even the smallest museum can benefit from using the advice of museum visitors with disabilities as a valuable resource.

The following publications can assist museums and arts programs in accessibility training. (See Resources for full citations.)

The *Everyone's Welcome* video that accompanies this handbook.

Part of Your General Public Is Disabled: A Handbook for Guides in Museums, Zoos, and Historic Houses. This video and handbook describes in detail training goals and strategies appropriate for many types of disabilities.

Design for Accessibility: An Arts Administrator's Guide. See Tab 13 for examples of successful training plans and Tabs 14-19 for discipline-specific training and resource information.

Park Canada's Access Series: *Disability Awareness and Sensitivity Training*, 1990.

The Arts and 504 Handbook. Chapter 3 presents a comprehensive approach to training with practical techniques.

The Accessible Museum. The section on the Fine Arts Museums of San Francisco focuses on staff training.

5. Review of Existing Facilities and Programs

A museum should examine all its activities, programs, services, policies, and facilities to determine how well it facilitates participation of people with disabilities. This is the self-evaluation required by Title II. (See the *Title II Technical Assistance Manual* Section 8.200.) No compliance form exists to provide museums with a comprehensive checklist for all issues that must be considered in the process of conducting a review (or as it is called in Title II, a self-evaluation). However, the *ADA Title II Action Guide for State and Local Governments* contains self-evaluation worksheets for Title II entities that may be helpful to all museums. The Checklist for Existing Facilities (version 2.1) provides guidance for Title III museum barrier removal efforts. *Design for Accessibility: An Arts Administrator's Guide*—Tab 8 contains the Arts Accessibility Checklist that relates to Title III museums and guides an institution's review of policies, practices, employment issues, print materials, and the facility. (See Resources.)

Goals of a Program Accessibility Review

A program accessibility review should develop a list that answers each of the following questions for every program and activity. The list should be checked for possible conflicts.

What is offered?
Where is it provided?
When is it available?

Example: An evening lecture could become inaccessible if the elevator serving the lecture space is not in a portion of the building that is open after hours.

Major Goals of the Review Process

Among the issues a study of program and facility accessibility should review are:

1. The language of the museum's policies and practices to determine if written policies.

   Limit or exclude people with disabilities in programs, services, and activities. (The goal is to identify potential program modifications and additional services that may be necessary.)

   Communicate less effectively with visitors, volunteers, and employees who have disabilities than with those who do not.

   Provide for emergency evacuation of all people, including people with sensory impairments. (Special attention should be paid to communication in emergency situations.)

   Comply with ADA Title I requirements for employment practices.

   Misrepresent or unfavorably portray people with disabilities.

2. The accessibility of programs, exhibitions, and publications from a communications standpoint. Determine the need for and availability

Policies

Typical policies that may discriminate:

No animals policy—service animals must be allowed.

No-food policy—people with diabetes or hypoglycemia may need to maintain their blood sugar level by eating.

Wait-in-line policy—some people may be unable to stand for long durations.

No-parking-on-grounds policy—some people may not be able to walk long distances from remote parking.

of auxiliary aids and services so that museums can communicate effectively with people with hearing, vision, and speech disabilities. These individuals must have equal opportunity to understand and enjoy all aspects of the museum experience. The museum should interview actual users to determine if these aids work for them. Conduct frequent routine maintenance checks to determine whether the aid or service is in good working order.

3. The accessibility of buildings where programs and activities take place or where goods and services are provided. Identify those physical barriers that limit access by people with disabilities. A variety of survey tools are currently available to conduct building assessments. Some are proprietary survey instruments that may be computerized and too large for the scope of small and mid-sized museums. A simplified survey tool may suffice for the small museum. A concise, manageable guide for conducting building assessments is the "Facility Checklist" found in the ADA Title II Action Guide for State and Local Governments. This checklist covers the following areas: accessible approach/entrance, access to programs and services, usability of rest rooms, and additional access. For those museums that have used the Uniform Federal Accessibility Standards as their accessible design standard, the UFAS Checklist is available. See Resources for information on these and other survey documents.

4. The adequacy of staff training for visitor and volunteer access. This would include familiarity with the use of auxiliary aids.

The Review Process

The museum's accessibility coordinator should guide the process of studying program and facility accessibility. Although not required to hold a public hearing, a museum may find it valuable to document the review process as a permanent record of its compliance efforts. This document should be approved, dated, and made available for public inspection upon request.

To conduct a review, the museum should first identify all programs, activities, and services; analyze its policies and governing practices; and evaluate its communication and physical access. This

process should encompass all museum activities and programs, including exhibitions, tours, educational programs, special events, and other services and conveniences available to the public, such as gift shops or tea rooms or other eating areas.

This review process should incorporate discussions with museum staff, the advisory council, museum management, and specialists or consultants. Questions to ask include: Are all materials in formats that a visitor or volunteer with either a hearing, vision, or mobility disability can easily find and use? Are individuals using self-guided tour materials? Interviews should be conducted with visitors and volunteers with disabilities—do they report having successful experiences at the museum? Were any experiences unsuccessful or problematic?

Finally, the review should survey the building's physical features to gauge to what extent barriers prevent participation by people with disabilities. It is not required that a Title III facility conduct a building or facility survey. However, without a facility survey, it is almost impossible to determine if a museum's programs, services, or activities are accessible.

6. Planning for Accessibility

Once a museum has examined its programs and facilities, it should begin planning for any needed accessibility modifications. While it may correct some problems immediately, by modifying spaces or relocating activities to accessible spaces, other problems may require several years to resolve. Many institutions plan for change in existing facilities and programs by setting short-, intermediate-, and long-term goals. Universal design represents the most cost-effective and inclusive means of guaranteeing access when a museum initiates new construction and programs. A museum's long-term goal should be a facility and programs that the broadest possible audience can take advantage of.

A. Taking Immediate Action

Many modifications to facilities, policies, training, and communications may be achievable immediately. For instance:

When all features are not accessible, visitors should be able to easily find those elements that are accessible. This might involve posting signs indicating the location of accessible building features, the provision of assistive listening systems or other accessibility enhancement equipment, and the availability of assistance.

Staff should be trained about the potential barriers in the museum and the methods of providing access for visitors with disabilities.

A portion of the parking area should be restriped to provide accessible parking space(s) and adjoining access aisles.

Replace knob hardware with lever handles on rest-room doors or faucets.

Provide a clipboard at the ticket or gift shop sales desk for visitors who cannot reach a high counter when signing a credit card voucher;

Trim or remove tall plants in front of an exhibit to provide better viewing.

B. Planning for Physical Modifications

Because institutions have varying resources at their disposal, some may need to spread out physical changes over a period of months and even years. Developing a plan for modifications and changes (similar to the Title II "transition plan" requirement) helps museums implement the transformation to accessible programs and facilities in a realistic and cost-effective fashion. The *Title II Technical Assistance Manual* addresses transition plans in Section 8.300.

The formal, written plan should reflect realistic compliance abilities of the museum. Developed under the guidance of the accessibility coordinator with input from the advisory council, it should detail what structural and program changes a museum needs to make, how they will be undertaken and when, and who is responsible for their implementation. The plan should include measurable goals for barrier removal.

The plan may include the following elements:

★ **a list of physical, program, and policy obstacles** that limit accessibility by people with disabilities;*

★ **methods the museum will use to remove barriers** and make its facilities accessible;*

★ **a schedule of dates for making the accessibility modifications,** with interim steps if compliance needs to take more than a year to achieve;*

★ **designating a museum official** (often the accessibility coordinator) to oversee the plan's implementation;

a periodic assessment of how the museum is doing in its approach to full accessibility, with due consideration of all plans and designs for new programs, events, and traveling and in-house exhibits, as well as new construction;

★ **giving people with disabilities and other interested individuals or organizations an opportunity to review and comment on plans and making them public when complete.**

Planning for Access in Historic Properties

★ **Under Title II of the ADA, qualified historic facilities must provide program accessibility.**

■ **Under Title III, both private for-profit and nonprofit museums that are located in historic buildings must remove barriers where it is readily achievable.** Both state and local government museums and private museums have ADA requirements when altering, renovating, or expanding their historic structures.

ADA and Federal, State, and Local Preservation Laws

The ADA recognizes the importance of safeguarding historic properties. The regulations require that interested persons, including people with disabilities, the state historic perservation officer, and certified local governments, be involved. They must resolve possible conflicts between two congressional mandates—protecting

*This is required when there are 50 or more employees of the Title II museum and its parent Title II entity.

America's architectural heritage under the National Historic Preservation Act and eliminating discrimination against individuals with disabilities under the ADA.

The ADA includes a number of special provisions for qualified historic properties. The regulations define a qualified historic property as a property that is listed in or eligible for listing in the National Register of Historic Places, or a property that is designated historic under state or local law. In situations where the alterations would threaten or destroy the significance of a qualified historic property, the law allows the use of special technical requirements—referred to as "minimum requirements for historic preservation"—to achieve accessibility. For those highly unusual circumstances in which even the minimum historic preservation requirements cannot be achieved, the ADA allows alternative methods of access to the program, goods, or services within the historic property. In either situation, the allowed variation from the criteria found in the ADA Standards would apply only to that element. Anything that was not threatened must meet full accessibility criteria. For further information on historic preservation, see Sections 4.1.6 and 4.1.7 of the ADA Standards, and the Title II and III regulations which provide important information on requirements for historic preservation.

C. Incorporating Accessibility into New Initiatives—The Goal of Universal Design

★ ■ **The ADA requires all additions, alterations, and newly constructed buildings and facilities be accessible to people with disabilities.** Where the ADA requirements recognize that full accessibility may be impossible in existing environments, long-term planning for new construction must produce accessible facilities and programs that are usable by all.

Prior to the ADA, accessibility focused on after-the-fact removal of barriers and resulted in a reactionary approach to design. This approach created a public perception that accessible design was costly, disruptive, unsightly, and of benefit to only a small group of people. To realize the positive potential of accessibility, leadership in the various design disciplines developed the concept of universal design for new design initiatives. Succinctly put, universal design is "a more proactive approach to the process of developing design solutions for the population at large."* In practice, universal design can meet, and in many respects may exceed, current accessibility standards, including the ADA Standards.

When institutions no longer are concerned with creating "special features" for "special populations," they can avoid duplicate features and incorporate accessibility into overall planning. For example, a new building can furnish grade-level access to all users by planning proper grading and incorporating gently sloping walks. This universal design approach eliminates the need for special elements such as separate entrances, "accessible" lifts and ramps that segregate people, because the grade level entry is used by everyone. When the concept of universal design is employed, structures more easily adapt to the changing needs of all building occupants.

* *Universal Design Newsletter,* "From the Publisher's Desk." July 1994.

7. Promoting and Advertising Accessibility in the Museum

Publicizing the accessibility of its facility, programs, and services can effectively increase a museum's constituency. By projecting an attitude that everyone is welcome, a museum can enhance its standing in the community as a significant cultural, educational, and entertainment resource.

More than likely, a museum already publicizes its programs and services through seasonal mailings, press releases, periodic newsletters, subscription series, posters, paid advertising, public service announcements, printed programs, and brochures. A museum can approach public relations and marketing designed for people with disabilities as it does any other audience-development project.

Using Accessibility Symbols

All promotional ads, marketing strategies, museum literature, postings, and announcements should be accompanied by accessibility symbols where appropriate. Using the correct symbol to denote a specific type of accessibility is often more successful than relying on text to describe the type of access available. Accessible typeface characteristics are discussed in Chapter 4 on page 115.

Accessibility symbols should denote the following types of access:

Wheelchair accessibility. The international symbol of accessibility indicates a facility or program is accessible to someone with a mobility disability. Exercise care if not all programs and services are accessible. In this case, include an explanation along with the symbol. For example, printed materials should note that, for instance, the entrance is accessible but the rest room isn't.

Sign-language interpreted programs.

555-1234 (TTY) [text telephone] or 555-1234 (voice and TTY) or (V/TTY) [if the same number is used for voice and TTY calls].

Accessibility Symbols

International Symbol of Accessibility (Light on Dark/Dark on Light)

International Symbol of Access for Hearing Loss

International TTY Symbol

Volume Control Telephone

Sign Language Interpreted *

* This symbol is from the Disability Access Symbols Project prepared by the Graphic Artists Guild. All other symbols in this grouping are from the ADA Standards.

Audio description and assistive listening systems.

Large print or Braille materials. (Often this is described in text and relayed to the person with a vision disability.)

The Disability Access Symbols Project (see Resources) offers both hard copy and computer-disk versions of twelve access symbols, along with descriptions of their appropriate use.

New Venues for Advertising

Standard channels of communication may not reach people with disabilities. Museums can contact people with disabilities by targeting specific media, disability-related organizations, services, and social groups. For example, people with hearing impairments may rely on a particular cable channel for captioned local news and community information.

People with disabilities often use these alternate formats for public information:

radio reading services

closed-captioned television

computer bulletin boards specifically for people with disabilities

Internet World Wide Web sites

TTY or relay services and information lines

local and national organizations that serve people with disabilities

meetings and conferences involving people with disabilities.

See Chapter 4 for more information on accessible communication strategies.

8. Grievance Process

Accessibility is an evolving art. In a museum's efforts to serve visitors with disabilities, problems are bound to occur, but so are newer strategies. For this reason, the law requires (though it does not establish a specific process) ★ **Title II entities with fifty or more employees to have a grievance procedure** which may be a process for identifying and resolving problems. Moreover, it is a good idea for any museum.

Museums should adopt grievance procedures. Under the ADA, visitors and volunteers have the legal right to file complaints and lawsuits against museums that do not provide accessible programs and facilities. A grievance policy may, however, resolve potential disputes before formal complaints are filed. This process can be as simple as letting people know that there is a complaint form and the name and number of a contact person.

It is recommended that a museum's grievance process include:

a detailed description of procedures for submitting a grievance, identifying to whom it should be submitted;

reasonable time frames for the review and resolution of the grievance;

documentation of each step in the grievance process for each complaint.

Experience has shown that institutions can resolve most informal or verbal complaints by working with the complainant to identify and correct access problems. Often the accessibility coordinator can resolve complaints about the treatment of an individual regarding services or employment. This eliminates having to resort to a formal grievance process. In fact, Title II and III regulations specifically encourage institutions to pursue alternative means of dispute resolution, including drawing on the advice of the accessibility coordinator and advisory council members.

The responsibility of providing an accessible environment for all museum visitors is ongoing and must be re-evaluated on a periodic basis.

Museums may find it advantageous to develop partnerships with state or local government agencies (such as a civil rights commission) for grievance resolution. The agency would then provide counsel, mediation, or technical assistance. Local disability organizations may also provide suggestions, information, and technical assistance. Effective grievance procedures can help a museum fine tune its accessibility and learn about universally designed solutions that benefit all visitors.

9. Ongoing Review of Access Efforts

The responsibility of providing an accessible environment for all museum visitors never ends. The ADA requires museums to continually evaluate remaining barriers as to whether or not their removal has become readily achievable. Each museum should institutionalize long-term policies and systems to incorporate accessibility into all new projects, programs, and activities. As time goes by, visitor profiles and available resources change along with the state of the art of accessible and universal design. These changes to a museum's programs or institutional priorities should influence the compliance plan. Museums should periodically re-evaluate themselves to make sure they are meeting the needs of their visitors in the most cost-effective means possible. This type of review needs to be built into the fabric of the institution. Periodic meetings should be conducted to review each of the nine building blocks.

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The authors would like to thank Janice Majewski and the Smithsonian Institution for their contribution to the Exhibition Design section of this chapter based on the book *Smithsonian Guidelines for Accessible Exhibition Design*.

Chapter 3—Accessible Facilities and Exhibits

I. Overview

Museums broaden their appeal when they create environments in which all members of society may gain valued experiences. The Americans with Disabilities Act is a key influence in this expansion. Our era's recognition and celebration of society's pluralism also leads to an emphasis on providing widened opportunities for all.

Today's audience ranges from young children to the elderly. The ADA requires museums to provide equal access for visitors with disabilities to public programs and spaces, including exhibits.

Museums display and teach, for example, science, art, and history, and range from children's museums to historic house museums to zoos, botanical gardens, living history museums, and galleries. Their activities include permanent and temporary exhibits, public programs, special events, demonstrations, performances, lectures, and research. Today, a trip to a museum can fully engage the visitor—who is no longer thought of as a passive observer—in a variety of participatory activities. This philosophy shapes how exhibits are designed and presented.

The ADA Standards for Accessible Design (Standards) provide design requirements for newly constructed buildings, facilities, elements and spaces to make them accessible. Exhibit design, as described in this workbook, is based on requirements and concepts taken from the ADA Standards, the *Smithsonian Guidelines for Accessible Exhibition Design*, data derived from disability-related human factors studies, and experience in making museums and their collections accessible since the passage of the Rehabilitation Act of 1973. This book sometimes goes beyond the minimum requirements of the law and presents "universal design" examples that can make museums usable by all people.

"Museums are changing from being static store houses for artifacts into active learning environments for people. It is now no longer enough to collect as an end in itself; collecting has become the means to an end, that of making connections with people and making links with their experience."

Eileen Hooper Greenhill
Museums and Their Visitors (1994)

All new construction and alterations that affect usability must be designed in compliance with the requirements of the ADA Standards. This chapter elaborates on key topics museum administrators and personnel should consider as they make existing facilities and programs accessible and plan for future modifications. Some actions may be required and others are recommended. It also identifies the minimum requirements of the ADA Standards and provides recommendations on how to improve usability for all visitors.

Like other museum visitors, visitors with disabilities should be able to:

Obtain information on and directions to the museum prior to the visit.

Find and use accessible parking and/or drop-off areas.

Get from an accessible arrival point to an accessible entrance via the shortest route possible.

Obtain additional information and directions about the museum on site.

Move around the site as needed to attend all offered activities, performances, and functions.

Experience and enjoy exhibits.

Select and purchase merchandise in the gift shops and restaurants.

Use public rest rooms, telephones, water fountains, and other typical public amenities.

II. Getting Information on the Museum Before the Visit

Typically, people find out about a museum and its special exhibits and events from radio, newspapers, seasonal mailings, posters, newsletters, and community cable television stations. These usual and customary methods of dissemination also can reach people with disabilities. But, refinements and alternative media make them more effective.

A. Use of Accessibility Symbols and Statements of Accessibility

Many people with disabilities do not assume that museum facilities and programs are accessible. Thus, it is important to provide statements regarding accessibility in all publicity and broadcast announcements. Declarative, low-key affirmations of a policy of nondiscrimination indicate a museum is committed to providing accessibility. A sample statement might read: "This facility and its exhibits are accessible to all people," which is preferable to the stigmatizing phrase, "The exhibit is accessible to the handicapped."

A Sample Low-Key Statement:

"This meeting is accessible to all people." (Never use the phrase accessible to the handicapped.)

Publicity can contain symbols that indicate what type of accessibility the museum offers. The most recognized logo is the International Symbol of Accessibility, a stylized wheelchair. If a museum fails to provide full access to people with mobility and/or sensory disabilities, then it should alert potential visitors of the limited level of access provided.

For example, when lack of financial resources compels a museum to make a sign-language interpreter available only with advance notice, a statement to that effect should be included in brochures and informational materials. If, however, a docent is a qualified interpreter and is available during normal museum hours, then the Sign Language Interpreted symbol

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(see Chapter 2, Accessibility Symbols, page 47) can appear with no additional explanation. Depending on the level of accessibility the museum provides and how obvious the accessibility is, it may be vital that all publicity includes information on how and where users can find accessible parking, entrances, exits, and information in alternative formats, such as audio tape, large print, or computer disk.

B. Print Media

The design of flyers, brochures, and newspaper or magazine advertisements should avoid overlapping type and images, and use typefaces that are large, high contrast, and easy to read (simple serif or sans serif, see page 115). This increases legibility for people with limited vision and for others, especially people with hearing disabilities who get the majority of their information through sight. (See Labels, page 114.) As much printed publicity as possible should be in large enough type to work both for people with corrected or low vision. (See Large Print, page 123.)

While space limitations may not allow all information to be in large print, key concepts, dates, and telephone numbers should use the recommended general type characteristics. Additionally, keying important statements with the appropriate accessibility symbol (e.g., interpreter symbol for a lecture) will highlight them for people who have difficulty reading.

While Braille is very useful to those who can read it, not all people who are blind read Braille. If financial resources are limited, other formats (e.g. audio tapes or diskettes) might reach a larger audience.

C. Broadcast Media

Television and radio can reach people with disabilities in a way print media cannot, particularly people with visual or cognitive disabilities. The audible portion reinforces graphic images. These programs are often easier to understand than printed text. Due to the brief nature of broadcast media, allow for sufficient follow-up to inquiries on the museum's accessibility features. Use of broadcast media may go beyond the scope and budget of many museums; however, there still may be opportunities to provide audio information with public service announcements, public-access cable television channels, or donated air time.

Although radio can reach large numbers of people, it is not effective for people with hearing disabilities. Television, however, can be an ideal way to publicize because it has both audio and visual features. Captioning makes the audio portion of the message visually comprehensible. In addition, similar to some televised news reports, a sign-language interpreter can appear in the corner of the screen. Captioning and interpreters, however, increase the risk of visual clutter and cost of production.

D. The Internet and Computer Bulletin Boards

While not as pervasive as print or broadcast media, the World Wide Web on the Internet and computer bulletin boards have gained popularity among many people with disabilities. Web sites are used to provide information about the museum, its programs, special events, and contact points. For the information to be accessible, it must be available using text-based browsers as well as conventional graphical

browsers. It also is now possible to add audio to the visual information and to provide a text-only version that can be read by special Internet browsers intended for people with visual impairments.

E. Organizations That Serve People with Disabilities

Museums can contact local disability groups and organizations to publicize accessible activities, programs, or services. They can get the word out to members of their community whom traditional media do not reach. Notify these organizations as early as possible to allow them ample time to include information in their scheduled releases, newsletters, publications, and announcements.

F. Responding to Inquiries

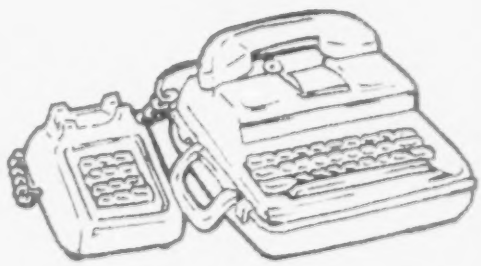
Once interested, how does someone find additional details that the general media may not carry? Providing telephone responses to questions regarding accessibility is critical.

If the museum is large or if the methods to provide accessibility are complicated, it may be best to have an accessibility coordinator, described in Chapter 2 (page 36), who is thoroughly knowledgeable about all accessibility services. Museums can train staff to offer detailed information on matters such as accessible parking, entrances, and rest rooms, as well as the availability of TTYs, interpreters, and audio descriptions.

Being able to communicate over the telephone with people who have hearing or speaking disabilities is very important. Telecommunication devices for people with sensory disabilities, known as text telephones (TTYs), can be used with traditional telephone hand-sets to type messages back and forth between museum staff and hearing- or speech-impaired callers. Publicity material should indicate TTY numbers if information is provided via TTY. Software exists to allow some computers to function as a TTY.

Another option available to communicate with people who have a hearing disability is the Telecommunication Relay Service offered by local telephone companies in each state and required by the ADA. Operators at the relay service act as intermediaries between those who use a TTY and those who do not. This service is not as efficient or effective as TTY-to-TTY systems and may not be appropriate for large and/or high-profile museums. It can be used as an interim measure.

Portable TTY

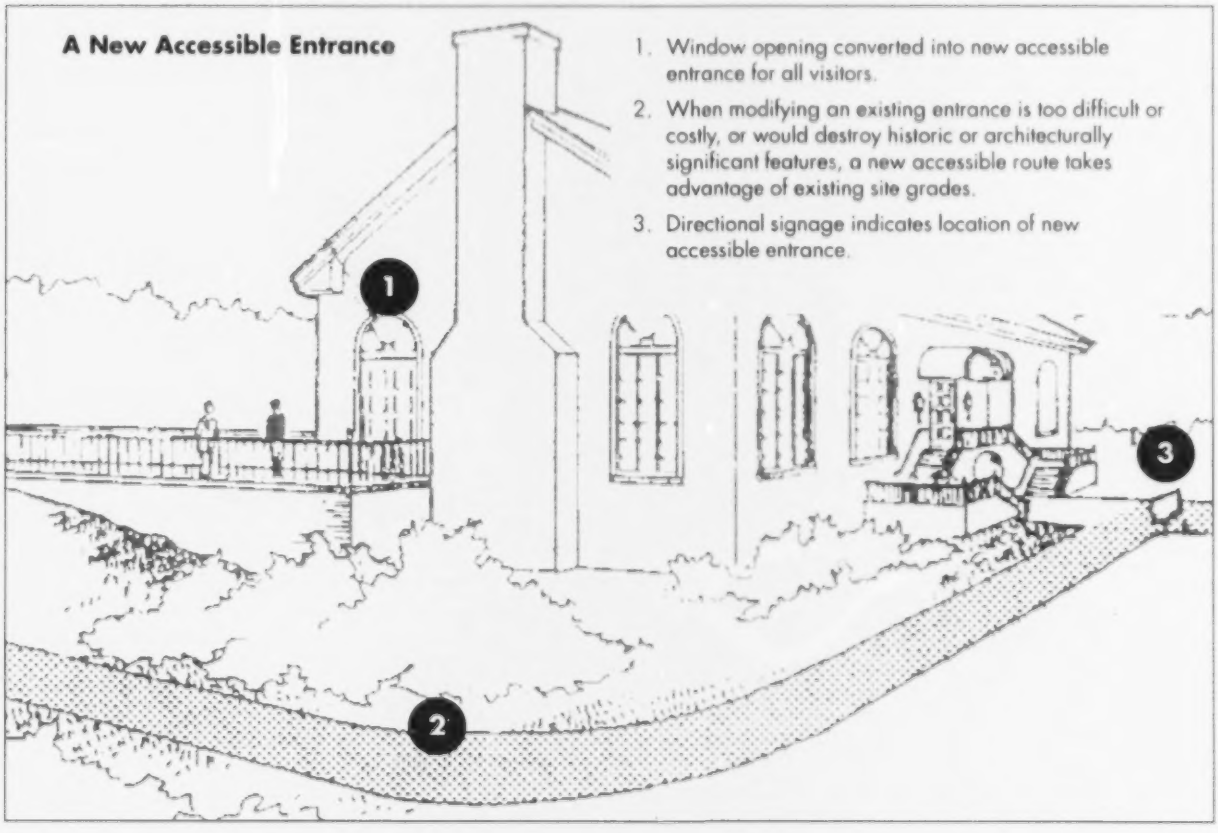


III. The Museum Experience

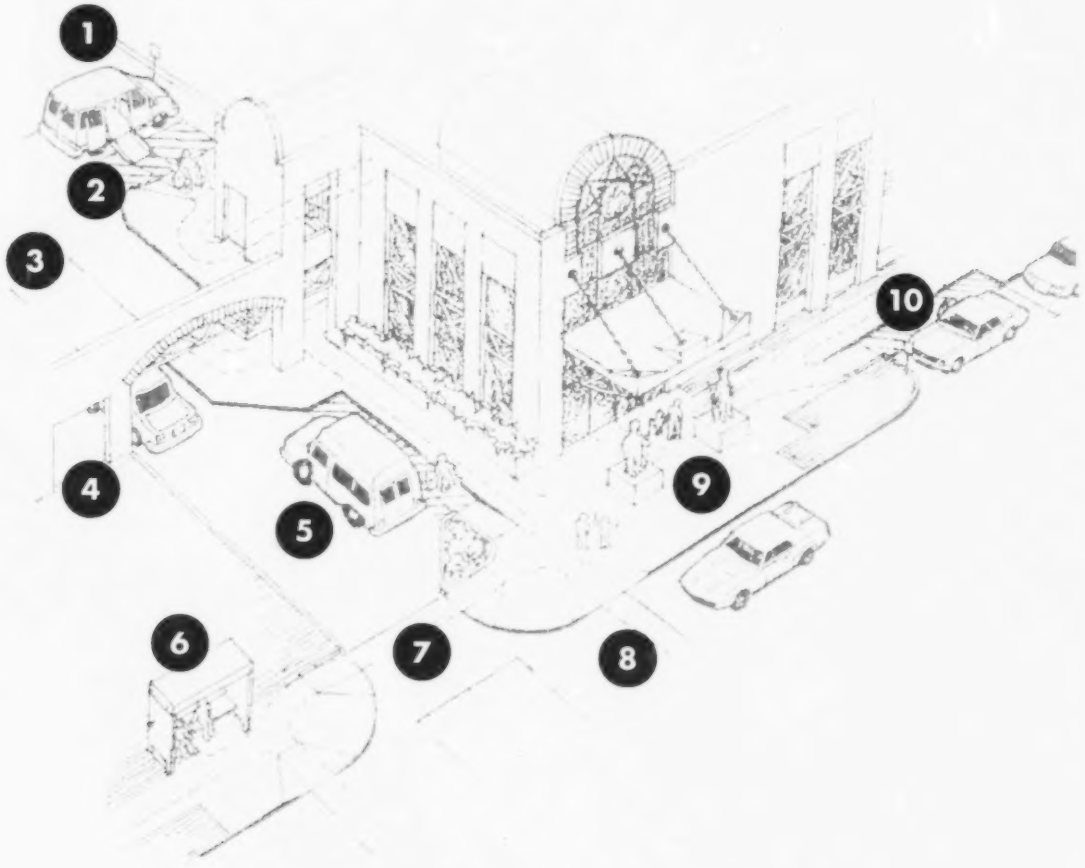
A. Arriving

Visitors arrive at the museum singly or in groups, such as a class of school children or a university study group. They use personal cars or vans, public buses, taxis, or a subway system. All visitors, including people with disabilities, must be able to move about the site with safety and ease.

Providing an accessible route of travel is required for safe and independent use of a site and its buildings by all people, especially those who use wheelchairs, walking aids, or who walk with difficulty or have a visual impairment. This single continuous accessible pedestrian path should be at least 36 inches wide, firm, stable and slip resistant without low or overhanging hazards or obstructions, **and** not require the use of stairs. All circulation paths must be free of protruding objects for people with visual impairments. Snow, fallen wet leaves, ice, etc. are continuing challenges for outdoor facilities that have large numbers of outdoor accessible routes.


A New Accessible Entrance
1. Window opening converted into new accessible entrance for all visitors.
2. When modifying an existing entrance is too difficult or costly, or would destroy historic or architecturally significant features, a new accessible route takes advantage of existing site grades.
3. Directional signage indicates location of new accessible entrance.
1
2
3

Getting to and Arriving at the Museum



1. Accessible van parking (in multiple space lots, one van space for every eight accessible car spaces; if eight spaces or fewer, at least one must be a van accessible space). Accessible parking spaces should be located on every level of parking that has a direct route to an accessible entrance. If only off-site parking is available, accessible spaces must be provided in that location.
2. 96" wide van accessible access aisle.
3. Two-story garage.
4. Ground level entry of parking garage allows raised roof vans to enter.
5. Accessible passenger drop-off area.
6. Accessible bus shelter.
7. Accessible route to building entrance connected to nearest public transit stop.
8. Accessible route from site arrival points to accessible building entrances.
9. Accessible building entrance.
10. Accessible curb-side parking.

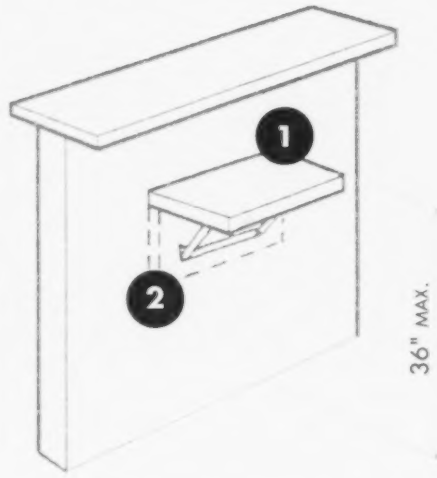
The accessible route provides a direct path from parking, bus stops, drop-off areas, and sidewalks into a primary building entrance and links or joins all accessible exhibits, exhibition and program spaces, drinking fountains, and rest rooms. ★ ■ **It must connect all accessible buildings and areas designated for visitor use such as outdoor sculpture gardens, displays, gift shops, and restaurants.** (See additional discussion of accessible routes on page 61.)

B. Entering the Facility

An accessible route to the entrance is free of steps or uses a ramp, elevator, or gently sloped walkway to change levels. Lifts may also be used for existing facilities. Faced with existing main entrances that are inaccessible and difficult to modify (or where modifications would threaten or destroy the historic significance of a qualified structure), a museum may convert another entrance at ground level into an accessible entrance. (See page 45, Access to Historic Structures in Chapter 2, "A Strategy for Accessibility," and the historic home illustration on page 54 of this chapter.)

The ADA intends for people with disabilities to be able to use the same entrance as other visitors. If the museum has no accessible entry and it considers building one, it should be designed to serve as another primary entrance for all visitors. However, when the museum offers multiple visitor entrances and not all are accessible, it should install signage at the accessible entrance displaying the International Symbol of Accessibility and directing the visitor to the accessible entrance. Make sure the accessible entrance is open the same hours as the main entrance and during all special events. Signage directing the public to the accessible entrance should be high-contrast, low-glare, uncomplicated, and easy to read.

Lowered Folding Counter at Existing High Information/Ticketing Desk



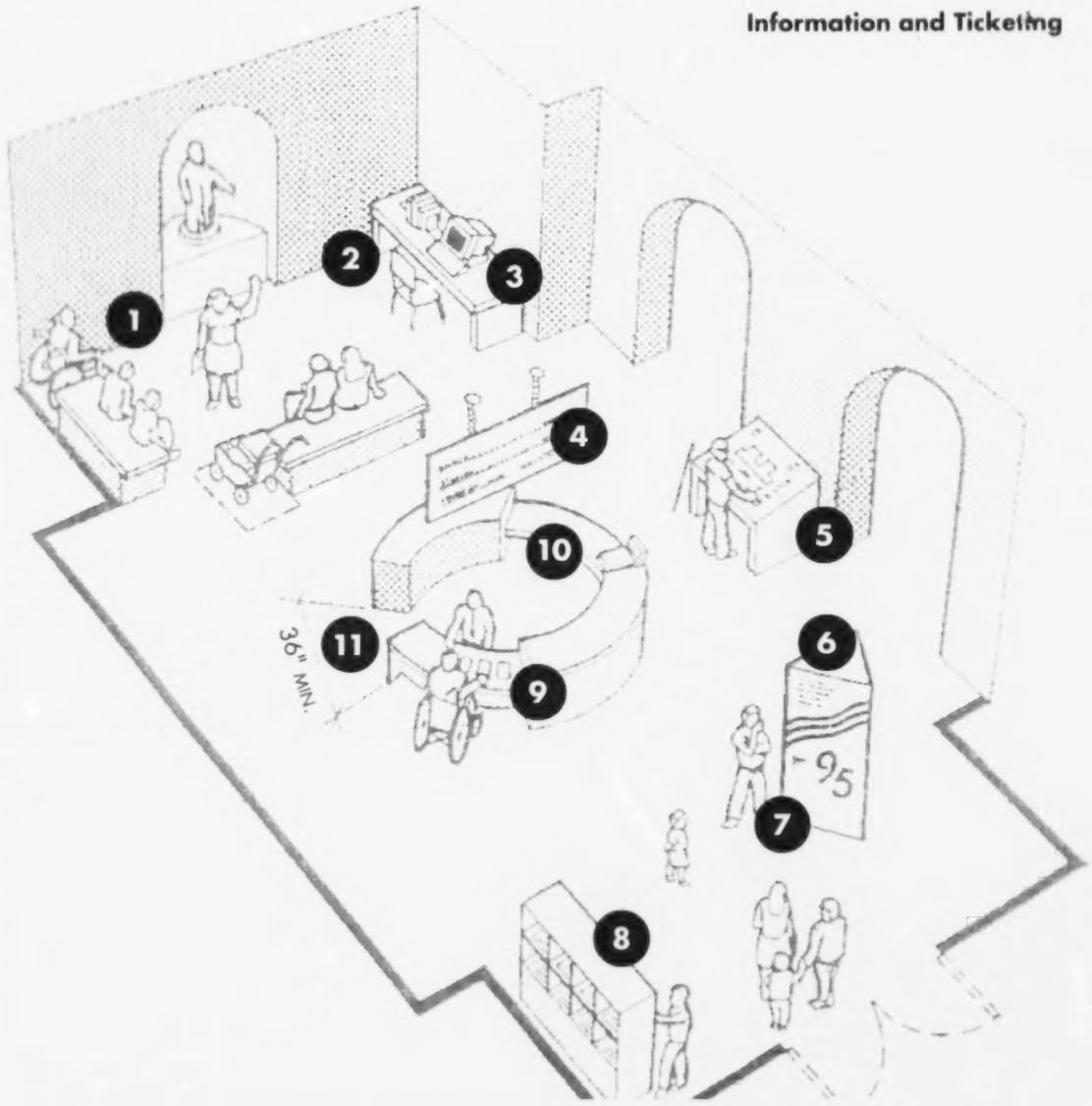
1. Lowered surface allows people who are seated or of short stature to sign documents or review brochures and publications.
2. The counter can be folded out of the way when not being used.

C. Information and Ticketing

Main Desk as Key Contact Point

The first place a museum visitor encounters is usually the ticket booth, which often serves as an information desk. It should be on the accessible route that connects the parking and the accessible entrance and exhibit spaces. The desk should have sufficient space allocated to circulation so that a person using a wheelchair can approach and maneuver into position to pay for a

Information and Ticketing



1. Orientation area with at least one wheelchair parking space (two or more preferred to allow choice of position).
2. Knee space and movable chair.
3. Computer with audio output gives overview of museum services.
4. Overhead sign with lettering size appropriate for viewing distance, at least 3" high.
5. Directory with raised-line map, tactile lettering, and knee space below.
6. Static information kiosk with speaker that presents audible version of text (See page 59 for interactive kiosk.)
7. Speaker button.
8. Self-serve, large-print brochures at heights reachable by all people.
9. Information/ticketing desk must be accessible to visitors and have a section of counter no higher than 36".
10. Although not required unless needed by an employee with a disability, it is recommended that information desks initially be designed with an accessible work/counter segment that has adequate knee space.
11. Adequate circulation around and within information/ticketing desk (See page 56.)

ticket and receive information about the museum. (See Circulation and Maneuvering Space at Exhibits, page 64.)

To be wheelchair accessible, a section of the counter or desk must be no higher than 36 inches. For a desk with a high surface, attach an auxiliary fold-up shelf to its front face. A table in close proximity to the main desk can serve the same purpose. The use of such an auxiliary surface should not be considered in new construction. See Section 7 of the ADA Standards.

Event Tickets Suggestion

Establish a policy for obtaining event tickets for people who are unable to wait on line for long periods of time due to fatigue, inability to stand, intolerance of heat and/or cold. This is often resolved by allowing people with disabilities to "cut the line," but a bench or other seating area and "placeholder" system might be more appropriate.

Note: Although not required by the ADA to be fully accessible until needed by an employee or volunteer with a disability, the employee side of the desk may be required to permit a person using a wheelchair to approach, enter, and exit the work area. If the area is made accessible initially, it prevents costly modifications later and provides more opportunities for volunteers.

Staff Awareness

Visitors often seek information when they enter a museum. Front-line staff and/or security guards who are there to welcome them should be trained in and knowledgeable about the accessible features and services the museum provides.

A staff that knows disability issues and can respond quickly, accurately, and sensitively to requests for information, directions, or assistance conveys genuine welcome. (See Chapter 2: A Strategy for Accessibility, page 39, for information about staff training.)

Gathering Information

Directional information is a part of visitor orientation. The museum should provide a brochure at the information desk or near the entrance that explains an exhibit's overall structure. Because people assimilate information in different ways, the ADA requires directional information found in brochures to be available in alternative formats such as audible or tactile formats. In a small museum, the staff could read the brochure to a blind visitor.

★ ■ **Directional signage must be high contrast and have a nonglare finish.** Additionally, directional signs higher than 80 inches (such as those suspended over gallery doors) must have a minimum letter height of 3 inches. Existing signs should meet these criteria, if possible. (See additional information in Signage, page 70.) Note: Within exhibition spaces of larger museums, heavy reliance on directional signs is discouraged because more subliminal techniques such as sight lines and color coding are often more effective and preferable. (See Getting Around in the Museum, page 60.) In smaller museums, docent training, special assistance, or audio tapes can be cost effective and universally usable.

Tactile Maps

A high-contrast, low-glare tactile map with raised lines and lettering is an excellent and universal way to provide directional information on the museum layout. Although three-dimensionality is a primary feature of a tactile map, by incorporating inked lines and text, it can be readable by sighted users. The museum perimeter, entrances, exhibit spaces, rest rooms, telephones (including TTY), restaurants, gift shops, etc., should be clearly marked. The map could be augmented by an audio tape connected to a control at the map.

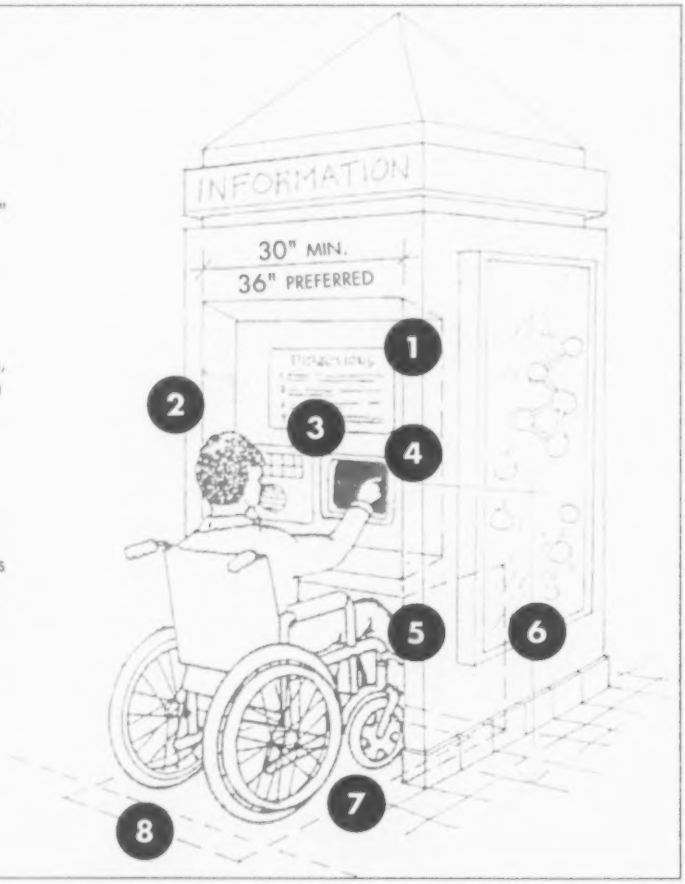
On-Site Information Kiosks

Ideally, all kiosks, both interactive and static, should reflect universal design and communicate information in both audible and visual modes. Sound pollution can diminish the experience for everyone, so audible information must be carefully controlled. If designed with an interactive screen or keyboard, the kiosk should also have audible output. (See page 97 for a discussion of accessible interactive screens and keyboards.)

If large exhibition posters are placed on a static kiosk, then a user-activated tape stating the same information should be an integral part of the kiosk. Also, docents can convey the same information to a visitor who cannot access visual information.

Interactive Kiosk

1. Operating instructions provided in both visual and audio formats.
2. When alcove depth is less than 24", alcove width can be as narrow as 30"; however, 36" is preferred.
3. 40" recommended to center of speakers that require talking or listening at close range.
4. Interactive touch screen, see page 98. To accommodate people with visual impairments, it is recommended that instructions also be via tactile or audio cues, e.g. speakers or hand-sets.
5. Full knee space, required for forward approach.
6. When counter depth beneath controls is less than 20" the height to top of control can be as much as 48"; if counter depth is greater than 20", the maximum control height is 44".
7. 30" X 48" clear floor space for a forward approach.
8. Clear floor space must adjoin or overlap accessible route.



D. Getting Around in the Museum

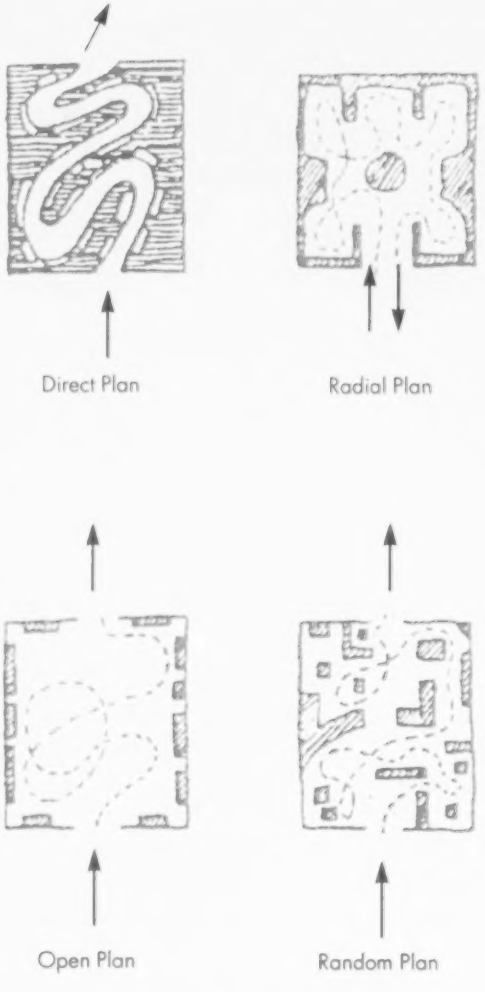
To ensure successful visitor wayfinding, museums should pay careful attention to various design issues when making pedestrian connections on multibuilding sites or creating exhibition spaces. Key factors include, but are not limited to, the location of exhibits and circulation routes, signage, orientation cues such as lighting and color, and visitor-orientation materials and services. An accessible route can be more comfortable for all visitors.

To move people through a gallery or site, museums often use one or a combination of direct, open, radial, or random plans. In general, exhibition spaces should be geometrically simple and easy to understand and move about in, allowing visitors to interact with displays from a variety of positions.

The pathway used by people with mobility disabilities, also known as the accessible route, must be smooth, level, and not have steps or stairs. In outdoor displays accessible routes through natural exhibits can be maintained by using soil stabilizers. ★ ■ **Level changes in the accessible route must be accomplished with an elevator, ramp, or gentle slope 1:20 or less. Lifts can also be used in alterations and for very limited situations in new construction.** The route should pass each exhibit and provide enough clear floor space for a person using a wheelchair to maneuver into position to get sufficiently close to a display.

Museum Plans

From Kathleen McLean's
Planning for People in Museum Exhibitions
Published by the Association of Science-Technology Centers, Inc. 1993.



The random plan, probably the most difficult for people with vision disabilities or people with cognitive disabilities, must have a carefully planned wayfinding system so that users do not become disoriented or confused and lose interest in the exhibit.

Spatial Requirements for a Person Using a Wheelchair.

★ ■ **A space 30 inches wide by 48 inches long is necessary to accommodate an adult seated in an average-sized wheelchair. The space necessary to make a 180-degree turn is a circle with a diameter of 60 inches. Alternatively, a person can make a T-shaped turn, similar to a three-point turn in a car,** at the intersection of a hall, between display cases, or even where one leg of the turn may be under a desk or table.

1. Accessible Route

The accessible route must conform to the following specific details, which the ADA Standards address in greater detail:

Width.

To allow a person using a wheelchair to navigate, ★ ■ **the accessible route must be at least 36 inches wide along its entire length. At doorways and at a point along accessible routes, the width may be reduced to 32 inches clear for a maximum distance of 24 inches.** If the museum expects many children visitors, it should consider increasing the route's width to 44 inches, because children who use wheelchairs are less adept than adults at traveling in a straight line.

Passing Spaces.

★ ■ **The accessible route should, on occasion (at least every 200 feet), be enlarged to a width of 60 inches to allow two people in wheelchairs to pass one another.** In children's environments, the passing spaces should be every 100 feet and 88 inches wide.

Height.

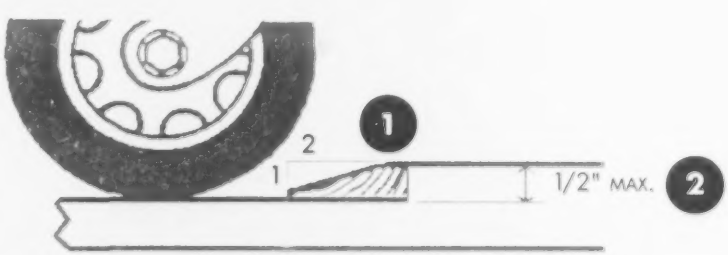
★ ■ **The accessible route must have at least 80 inches of headroom or vertical clearance.** This headroom must be provided on all other pathways, including stairs, to eliminate head injuries among people with low or no vision, or others who may be unobservant. (See also Protruding Objects, page 68.)

Slope and Changes in Level.

★ ■ **The slope along an accessible route must be no greater than 1 in 20 or 5 percent. If greater, it then becomes a ramp and must have landings, handrails, and**

Small Changes in Level Along Accessible Routes

1. A vertical rise between 1/4" and 1/2" must be beveled with a maximum slope of 1:2.
2. A vertical rise greater than 1/2" must have a ramp sloped no steeper than 1:12.



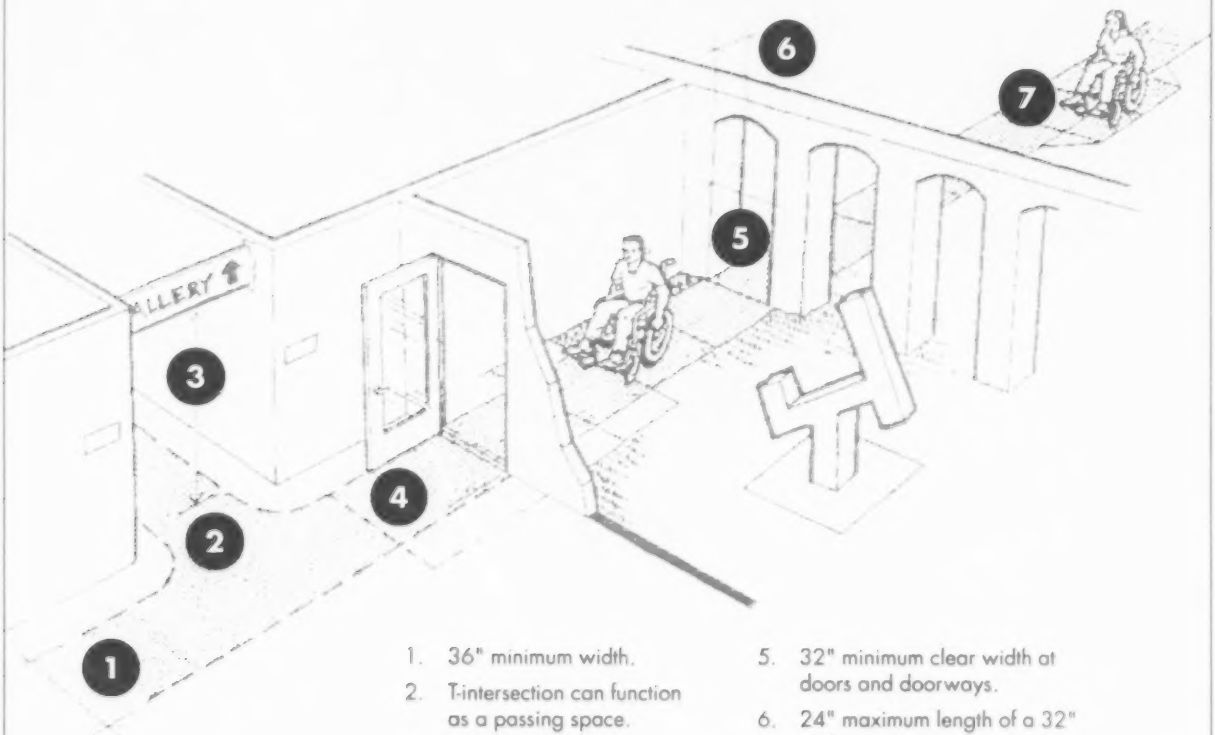
edge protection with a maximum slope of 1 in 12 or 8.33 percent. At the maximum slope of 1 in 12, ramps are difficult for many people to ascend. For this reason, it is recommended that ramp slopes not exceed 1 in 15. This also is a preferred slope for children's environments.

★ ■ **The accessible route's cross slope, or slope that is perpendicular to the path of travel, is limited to 2 percent. Any vertical level changes between 1/4 inch and 1/2 inch must be beveled. Changes of level greater than that must be made by means of a slope < 1:20, a ramp, or an elevator. A lift can be used in alterations.**

Floor Surface.

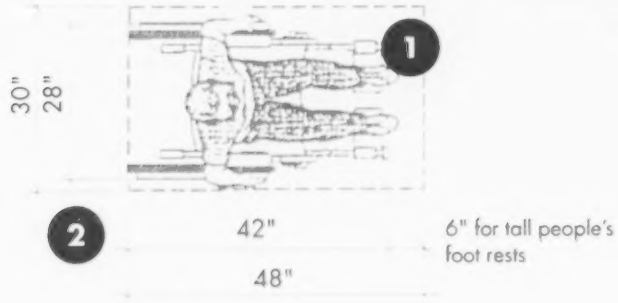
★ ■ **The accessible route and adjoining maneuvering spaces must be stable, firm, and slip-resistant.** Carpeting should be securely attached and any exposed edges fastened to the floor. ★ ■ **Carpet should be selected with a level or textured loop, or a level cut or uncut pile texture with a maximum pile thickness of 1/2 inch.** Any cushion, pad, or backing should

Basic Features of an Accessible Route



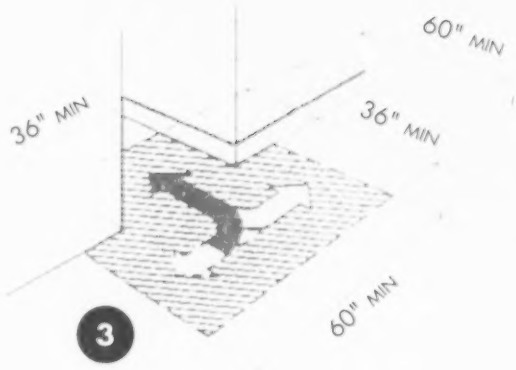
1. 36" minimum width.
2. T-intersection can function as a passing space.
3. 80" minimum headroom.
4. Maneuvering space at doors (See Section 4.13 of the ADA Standards.)
5. 32" minimum clear width at doors and doorways.
6. 24" maximum length of a 32" wide section.
7. 60" X 60" passing space (at least one every 200').

Space Allowances and Approximate Dimensions of Adult-Sized Wheelchair

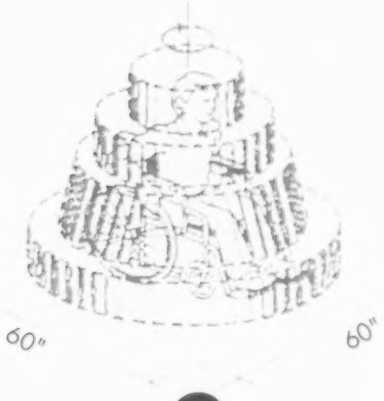


1. Foot rests and toes may extend farther for some people.
2. 30" X 48" clear floor space.
3. The minimum space necessary to perform a T-turn.
4. Minimum 30" wide knee space increased to 36" minimum to provide for T-turn.
5. 60" diameter.

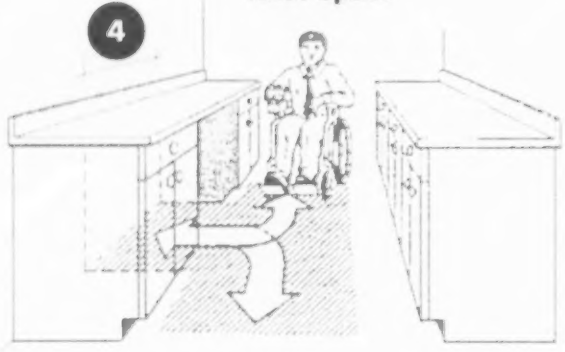
T-turn Space



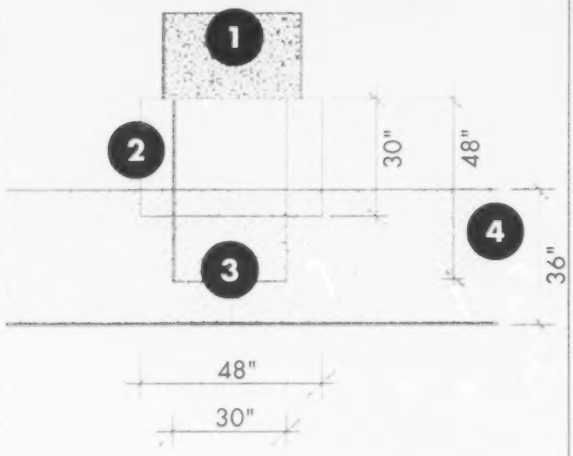
Pivoting Turn Space



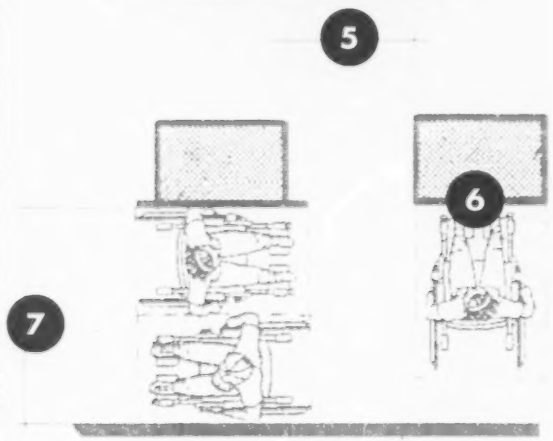
T-turn within a Knee Space



30" X 48" Clear Floor Space Must Be on an Accessible Route



Minimum Distances Between Wall Display Cases and Other Exhibits



1. Display case.
2. Parallel approach.
3. Perpendicular approach.
4. Accessible route.
5. 36" minimum width, 60" or wider preferred.
6. Perpendicular approach leaves insufficient space for a walking person to pass comfortably.
7. Minimum width of 60" (72" preferred).

be firm, or better yet, carpet should be installed without a pad. Avoid thick plush carpet and designs with weaves that cause a wheelchair to sink or move in a zigzag pattern.

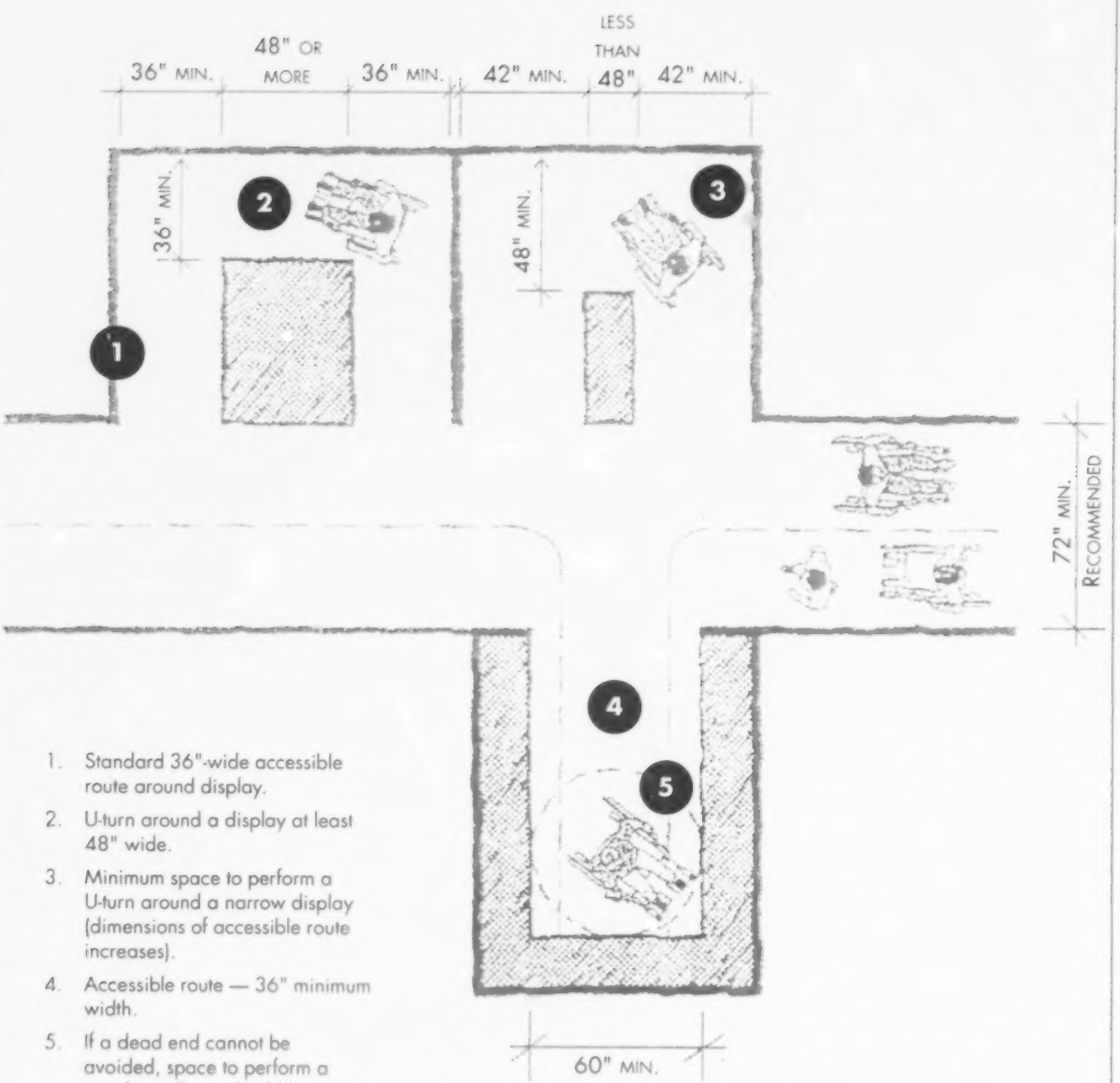
Avoid highly glazed ceramic tile because its slippery surface makes it hard for a person using a wheelchair to get sufficient traction. Like wood, ceramic tile can be noisy when walked on and extremely distracting for people who wear hearing aids (Some hearing aids pick up and amplify background sounds.) Tile with embedded carborundum grit, textured clay tiles, cork tiles, and some slip-resistant P.V.C. tiles work well in both wet and dry conditions. Other surface types may be considered but should be evaluated under simulated conditions of use. Because people in wheelchairs have difficulty rolling over cocoa mats and exterior rubber mats, they should be removed or replaced with low profile, securely attached carpet.

2. Circulation and Maneuvering Space at Exhibits

People using wheelchairs need additional floor space. This should influence how displays are distributed. People make different wheelchair approaches to get sufficiently close to view a display case or see an object. The typical approaches—perpendicular (front) and parallel (side)—are shown in the accompanying illustrations, although users often angle their wheelchairs to achieve a position most comfortable for viewing.

Each exhibit should have at least one 30-inch by 48-inch clear floor space located on each viewing side of the case or vitrine that is connected to or overlaps the accessible route. It is preferred that space be allocated to give users the option of

Dimensions for Circulation Within Confined Exhibition Spaces



1. Standard 36"-wide accessible route around display.
2. U-turn around a display at least 48" wide.
3. Minimum space to perform a U-turn around a narrow display (dimensions of accessible route increases).
4. Accessible route — 36" minimum width.
5. If a dead end cannot be avoided, space to perform a circular or T-turn should be provided.

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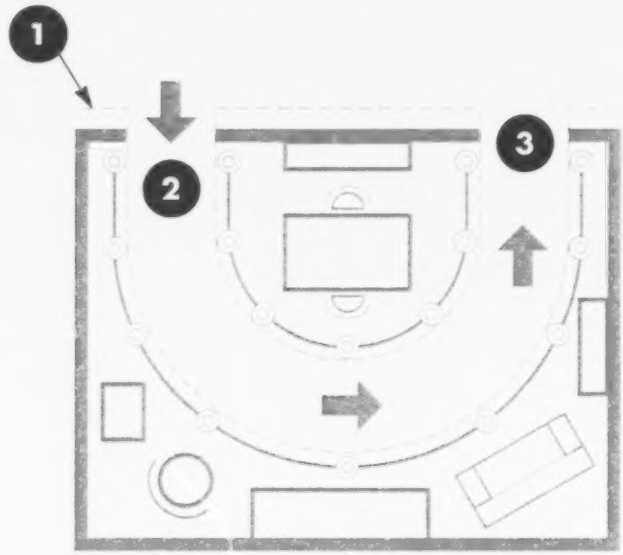
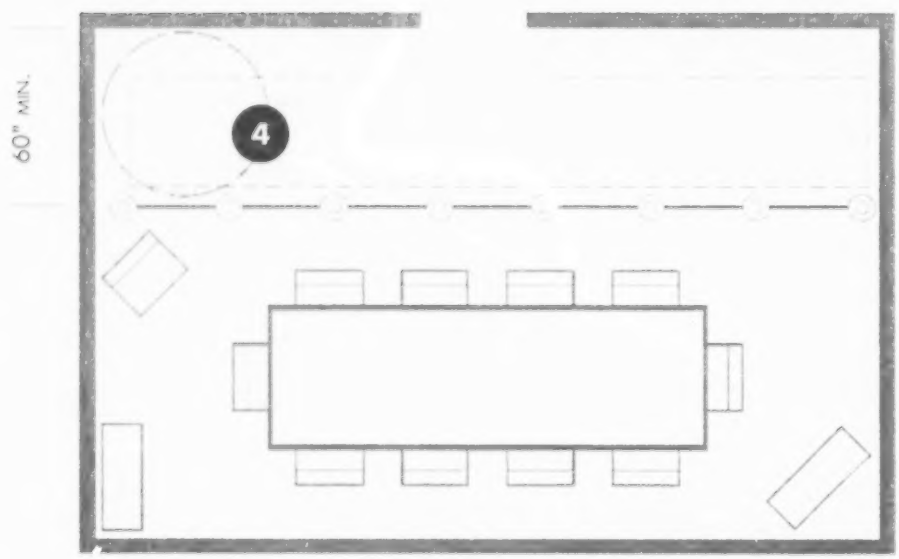
In Tight Room Spaces, a One-Way Visitor Route Is Best to Achieve Usable Clear Width

1. Directional signage indicating one-way traffic.
2. Route 36" minimum, 44" and larger preferred.
3. Door clearance width 32" minimum, 36" preferred.
4. 60" diameter wheelchair turning space.



Dead Ends Must Have Turning Space to Be Usable



Key to ADA Requirements: ★ = Title II, ■ = Title III

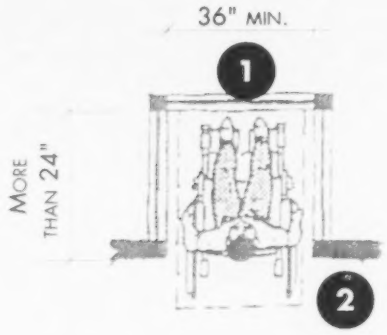
approaching from a position either parallel or perpendicular to the display. When designing exhibits, provide at least 60 inches of distance between cases, displays, or sculptures. This serves several functions. One, it allows a choice of approach, and two, it allows a second person to pass someone in a wheelchair who has stopped to view an object. However, if the person using a wheelchair has assumed a position perpendicular to the exhibit in a 60-inch area, only 12 inches are available for a walking person to pass behind. Whenever possible, the distance between exhibit elements should be at least 72 inches.

Alcoves. Exhibits displayed in alcoves permit a more private connection between visitor and display and allow the visitor to linger outside the traffic flow. For small exhibits with audio features, alcoves trap and prevent sound from spilling into the remainder of the exhibition space and distracting people whose hearing aids amplify all captured sounds.

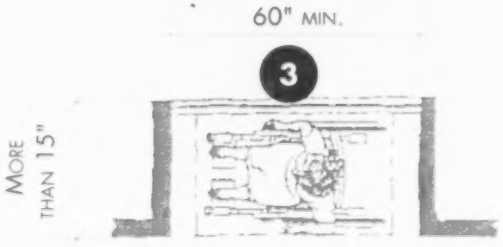
★ ■ **Alcoves can be as narrow as 30 inches if they are less than 24 inches deep. Alcoves must at least 36 inches wide if their depth is 24 inches or more.** Thirty-six inches is the recommended maximum depth because it is difficult for some people who use manual wheelchairs to back up.

★ ■ **Alcoves that permit a parallel approach must be at least 60 inches wide if deeper than 15 inches.** This allows a person using a wheelchair 12 inches of additional space to maneuver into and out of the alcove. Alcoves with angled side walls are easier, more comfortable, and better allow a walking companion and a wheelchair user to share the exhibit experience simultaneously.

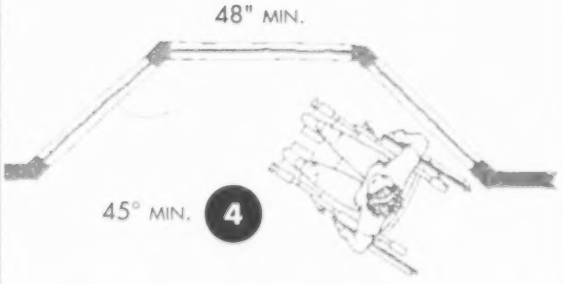
Forward Approach Minimum-Sized Narrow Alcove



Side Approach Minimum-Sized Alcove



Preferred Alcove



1. When alcove depth is less than 24" recommended width may be as narrow as 30", however 36" minimum is recommended.
2. This configuration only allows a forward approach.
3. When alcove depth is less than 15" alcove width may be as narrow as 48" minimum, however 60" minimum is recommended and required if the depth is 15" or more.
4. This configuration allows either a parallel or a perpendicular approach.

3. Eliminating Protruding Objects

Protruding objects must not encroach on any interior or exterior pathway; i.e., wherever visitors and staff may walk, including accessible routes. Building elements such as signs, drinking fountains, fire extinguishers, hanging plants, or wall sconces may not protrude from walls or hang down from overhead in such a way that persons with a vision or perception disability may run into the object and injure themselves. This restriction applies to all exhibits and wall-hung or free-standing display cases.

★ ■ **An object mounted on a wall may not protrude more than 4 inches unless its bottom edge is below 27 inches** and thus detectable by a person with a vision disability using a long cane for navigation. Objects that protrude more than 4 inches must be at least 80 inches above the floor or extend to below 27 inches from the floor.

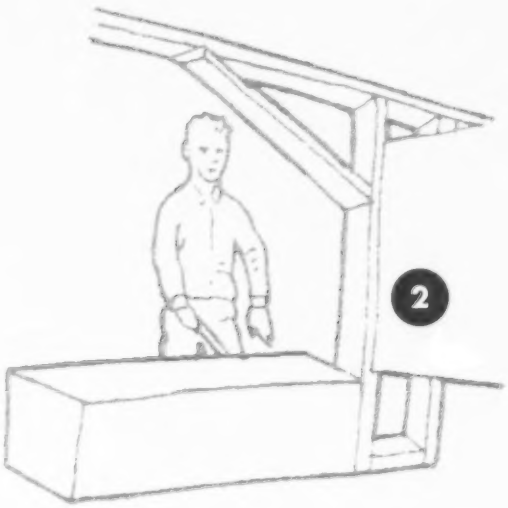
★ ■ **Items mounted on posts, or pylons may project into space as much as 12 inches from their bases.** When an object overhangs by no more than 12 inches, a person using a long cane can detect the presence of the base or pedestal and avoid running into the item. Free-standing objects must have a cane-detectable element at or below 27 inches if the object projects from its base more than 12 inches. The sections in this workbook on Display Cases and Sculptures provide methods of installation that prevent exhibits from constituting protruding objects.

A detectable element such as a base or planter may be placed below the protruding object if it does not restrict the required circulation space.

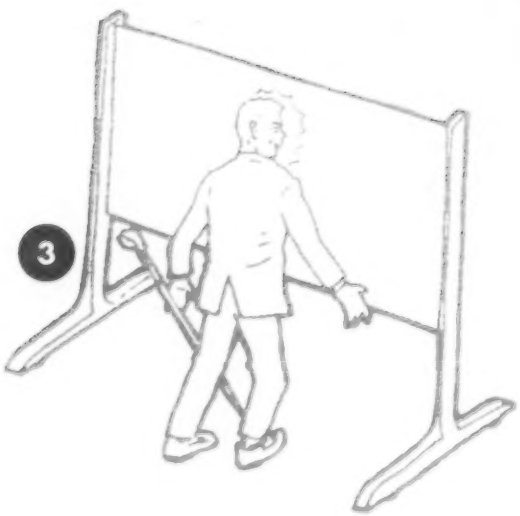
Improperly Designed Wall Panels May Be Hazardous Protruding Objects

Problem

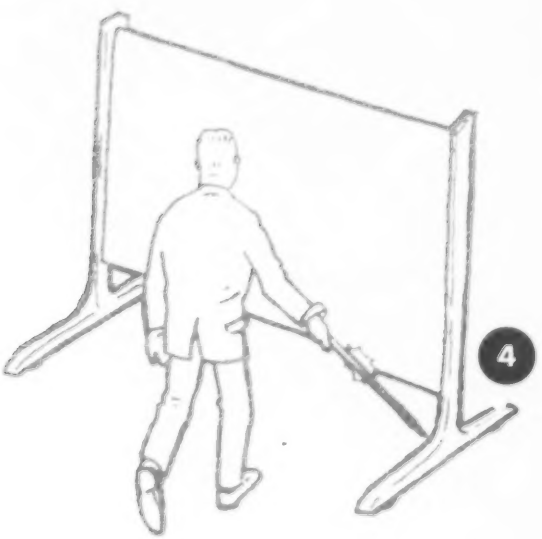
Solution



Problem



Solution



1. Overhang less than 80" (bad).
2. Cane-detectable barrier (good).
3. Bottom edge above 27" (bad).
4. Bottom edge below 27" (good).

Temporary Walls or Moveable Partitions. Museums use temporary or movable partitions to delineate exhibit space and circulation routes, as well as to display wall-hung exhibits. It is critical to select or design walls and partitions that do not present hazards for someone with a vision impairment. Both "problem" illustrations on page 69 depict negative examples. In the first, the overhead supporting structure violates the 80-inch minimum headroom requirement and, in the second illustration, the display panel is not detectable because its bottom edge is above 27 inches.

4. Signage, Lighting, and Other Wayfinding Cues

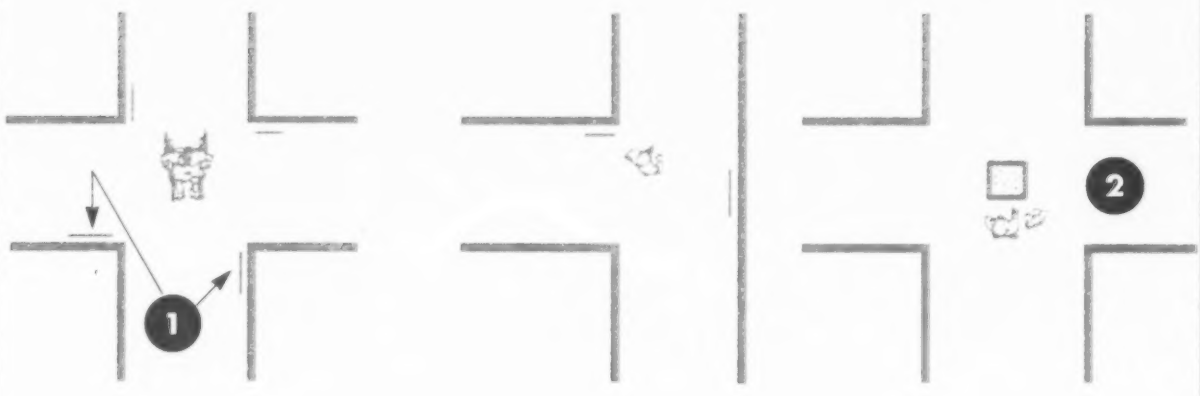
Signage is one way to inform visitors, but in and of itself is not sufficient within an exhibit space.

Visual or other nonverbal cues, such as color coding of floor markings or walls with symbols of the same colors keyed to an orientation brochure, may help people with low vision or with cognitive or perception disabilities. Visual cues can enable all visitors to identify their current location and provide directions to other locations. However clear the color-cueing system may appear to be, remember that some people may not be able to discriminate between some colors, especially those of similar value. Therefore, color should not be the only directional key provided.

Other strategies include:

indicating the pathway or accessible route in a different surface texture

Signage Located in Standard, Logical, Predictable Places Perpendicular to the Path of Travel



1. Informational/directional signs located perpendicular to the path of travel.
2. Free-standing directory, kiosk and/or information booth at major intersection.

visually separating the walls, floors, and pedestals of cases or vitrines; see the section on Lighting and Color for Exhibits and Gallery Spaces.

incorporating landmarks or architectural features that can be easily distinguished.

creating changes in illumination level.

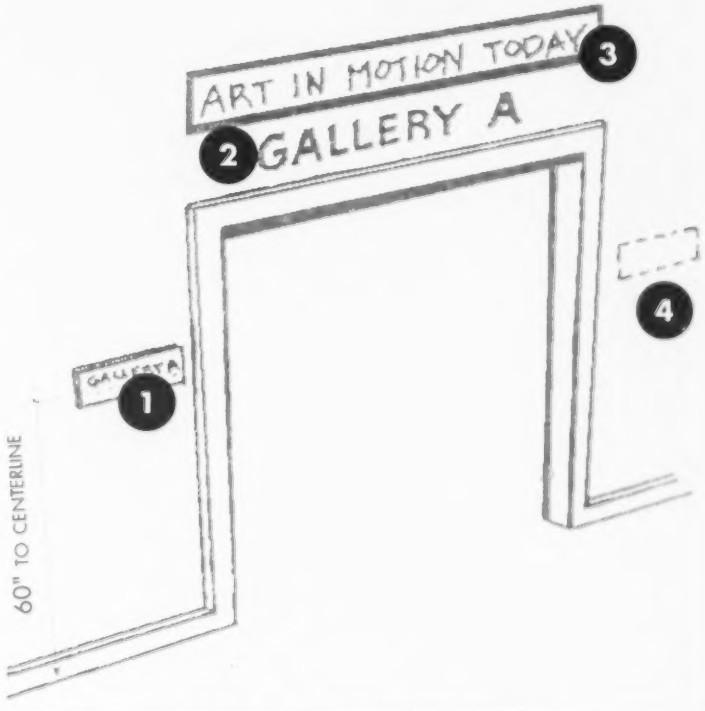
Lighting. Provide lighting of at least 5 to 10 foot-candles along the accessible route so that visitors with visual or perception difficulties may walk/roll safely. Other lighting techniques such as the use of transition areas are discussed in this workbook in the section Lighting and Color for Exhibits and Gallery Spaces.

Signage. Although directional signage within exhibition spaces should be minimized, signs are still an integral part of the museum experience. Type style, size, and position of text panels on case, floor, and wall labels are addressed in the Labels section of this book.

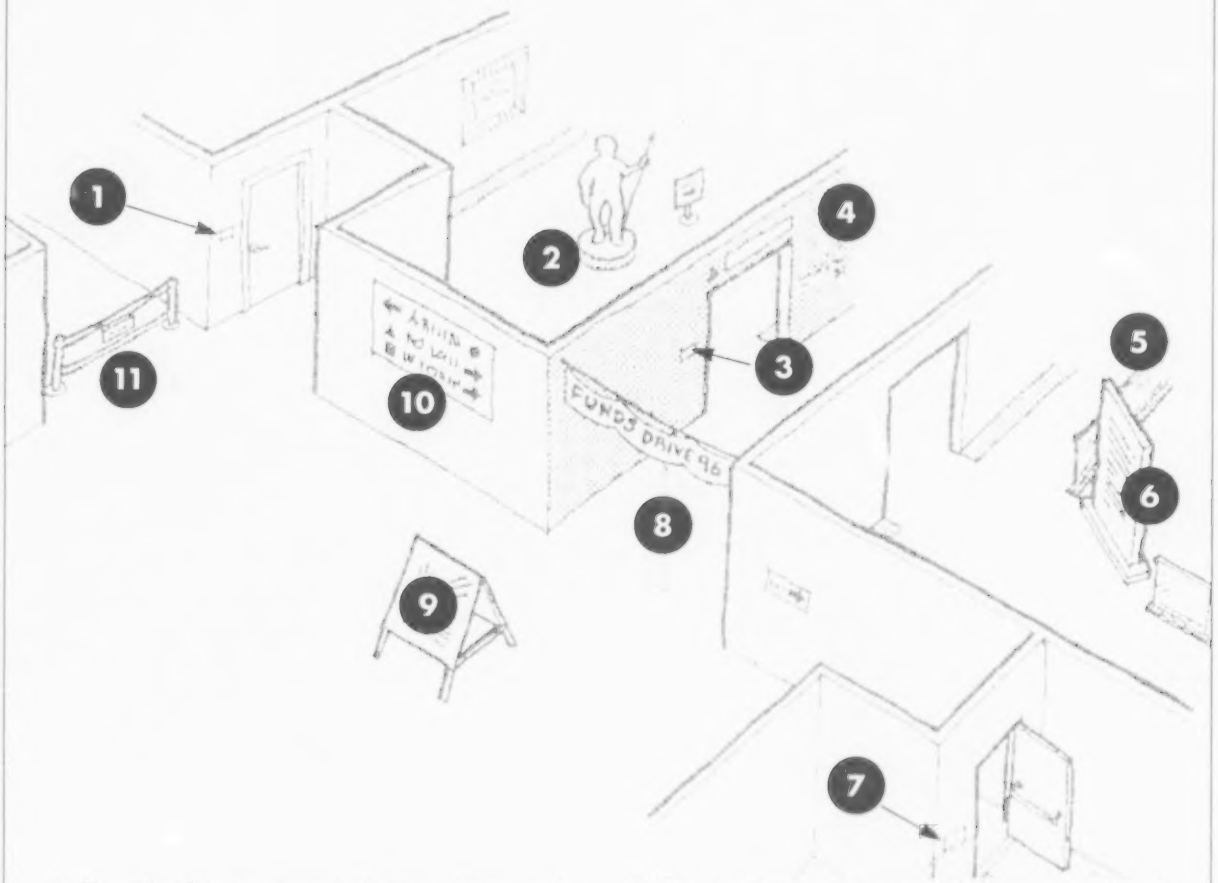
If building signage is provided, it should be located in standard, logical, and predictable places, perpendicular to the visitor pathway. ★ ■ **Signage required to be accessible by the ADA Standards is divided into two categories: 1) that which identifies permanent rooms and spaces must be both tactile and visually accessible; and 2) that which provides information about or directions to functional spaces must only meet the visual criteria.**

Signs for Permanent Rooms and Spaces

1. Permanent tactile sign here placed in a consistent easy-to-find location for people who are blind or have low vision. Incised letters cannot be used—they are difficult or impossible to read tactually.
2. "GALLERY A" is a permanent room, thus sign with tactile characters is added beside the doorway.
3. "ART IN MOTION TODAY" is an information sign about a specific exhibit and must meet the specifications of informational and directional signs. Italic letters should not be used—they are difficult to read.
4. At wide doorways, it is recommended that signs with tactile characters and Braille be placed at the 60" height on both sides.



Wayfinding Features in Typical Exhibition Spaces



1. Signs identifying permanently designated rooms and spaces, including exits and rest rooms, libraries and gift shops, must comply with the requirements for permanent room signage, including specifications for raised characters and Braille.
2. Bases of sculptures or display cases contrast with surrounding floor to assist people with low or limited vision with wayfinding.
3. Permanent room signs mounted at 60" above floor.
4. Wall color at entrance of each exhibition space and matching colored carpet strip along exhibit walls help to visually orient the visitor. Color should also be keyed to brochures and directional signage.
5. Barriers around exhibits or for pathways should have bases, trim, or other features that contrast with surrounding floor area; lighting can be used to augment wayfinding.
6. Text panels should at least meet the requirements for informational and directional signs.
7. Exit signs designate a space and thus must comply with the specifications for permanent room identification. Visually clear and tactually readable directional sign at exit is important for safety.
8. Overhead signs must not reduce headroom to less than 80".
9. Temporary signs, particularly those on posts or easels, must not be hazardous protruding objects and need a cane-detectable element at or below 27"; temporary signs should at least meet the requirements for informational and directional signs.
10. Directional signage with easy-to-read type that contrasts with background. In addition, this sign could be color coded and/or keyed with symbols to facilitate general use and assist those who cannot read.
11. Barriers and signs blocking off temporarily closed exhibit halls or galleries must not be hazardous protruding objects. If stanchions are used they should have their lowest strap at or below 27".

Key to ADA Requirements: ★ = Title II, ■ = Title III

"Designers shouldn't rely on directional signs, since people must consciously pay attention to and interpret them if they are to be effective."

Kathleen McLean
Planning for People in Museum Exhibitions
Published by the Association of Science-Technology Centers, 1993.

★ ■ **Examples of signs that designate permanent rooms and spaces include room numbers, exit signs, men's and women's rest rooms.** Signs designating gallery names, gift shop, restaurant, planetarium, and conference rooms should be tactile to provide accessible identifaction. Examples of signs that provide direction to or information about the building's functional spaces, for example, include "Matisse Exhibit This Way" and signs indicating an exhibit is installed for a limited period. Both categories of signs must meet the respective specifications given in the following lists.

Permanent Identification of Rooms and Spaces

★ ■ **When permanent signs are provided that identify rooms and spaces, they must be centered 60 inches above the floor on the latch side of the door.**

★ ■ **Characters and symbols must be of high-contrast with their backgrounds.**

★ ■ **Signs have a matte or nonglare finish.**

★ ■ **Letters and numbers must be tactile and accompanied by Grade 2 Braille.**

★ ■ **Tactile letters and numbers are raised 1/32 inch minimum, upper case, sans serif or simple serif, and 5/8 inch to 2 inches in height.**

★ ■ **Mounting location must allow a person to approach within 3 inches of the sign without encountering protruding objects or entering the swing area of the door.**

★ ■ **Pictograms that identify a space must be accompanied by the equivalent text description placed directly below the pictogram.**

Permanent Informational and Directional Signs

These are signs that provide direction to or information about functional spaces. They must have the following characteristics.

★ ■ **Signs suspended or projected 80 inches above the finished floor must have a character height of 3 inches minimum.**

★ ■ **Width-to-height ratio of letters and numbers is between 3:5 and 1:1 (See page 115.)**

★ ■ **Width-to-height ratio of line width is between 1:5 and 1:10 (See page 115.)**

★ ■ **Characters and symbols must be of high-contrast with their backgrounds.**

★ ■ **Signs must have a nonglare finish.**

5. Crowd Control Barriers

Museums use barriers throughout their facilities to ensure visitor safety and the security of exhibits. They also are used to prevent people who have visual impairments from walking into overhanging exhibit elements and to keep all visitors from falling at changes in floor level. Examples of barriers include: plexiglass partitions, railings, stanchions, fencing, and even moats.

★ ■ **Barriers must be installed so as not to be a hazard themselves and so they are cane detectable, that is, have a leading edge or detectable element no higher than 27 inches above the floor.** (See also Sculptures, page 101.) Stanchions and ropes generally are poor choices for barriers because the horizontal cord is often above 27 inches and the vertical posts may be beyond the sweep of the cane used by many people with vision disabilities.

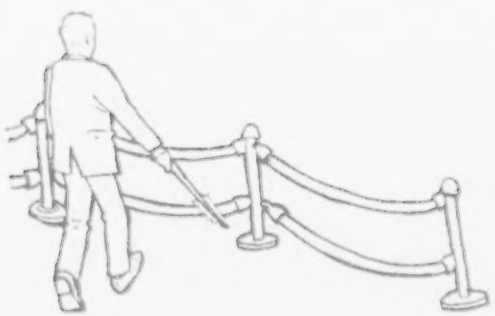
The presence and/or design of a barrier should not prevent a visitor from seeing, hearing, or interacting with an exhibit. Design glass and plexiglass barriers so that visitors using wheelchairs can view the exhibit. Make sure all visitors, especially those with low vision, will see or detect barriers and not walk into them. Edges of glass barriers should be demarcated with a band of trim or even a light-strip. When possible, a consistent system of barriers should be used throughout the museum. Information about the system should be provided to visitors during orientation.

The typical exhibit barrier height of 42 inches is too high for people seated in wheelchairs and children, or people of short stature, to see over when viewing an exhibit. It is recommended that exhibition barriers be placed at a maximum height of 36 inches. This allows labels to be mounted directly on the rail (with the top of the label approximately 40 inches maximum

Stanchions and Ropes May Be a Hazard

Problem

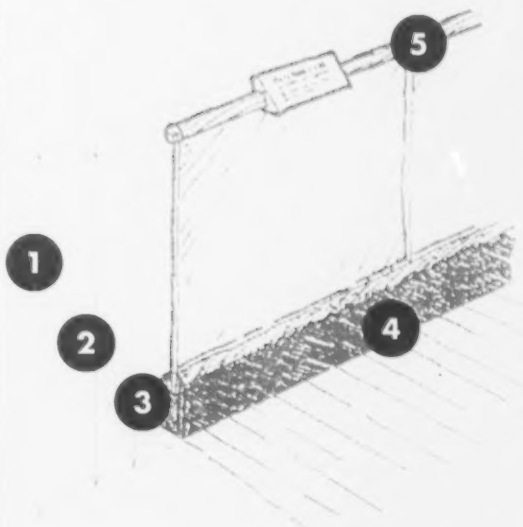
Solution



above the floor) and still be readable by all users. Exercise care when placing objects within spaces protected by barriers. For example, objects mounted directly behind barriers, especially if rail labels are used, might be obscured by the barrier and the label.

Historic Houses. Of particular concern is the use of barriers in historic houses to prevent access into entire or parts of rooms. Interior spaces are often small. Therefore, objects and furniture typically cannot be moved to allow better circulation; rugs may pose tripping hazards.

Fixed Exhibit Barriers



1. 40" maximum to top of label.
2. 36" maximum to top of rail.
3. 10"-14" to stabilize barrier and protect glass from being scratched by wheelchair footrests.
4. Base contrasts with surrounding surfaces.
5. Solid material trim.

Plexiglass panels can serve as successful barriers that create routes through rooms while allowing most visitors to have at least a general view of the room's contents. However, when glass barriers are installed at doorways or through small rooms, visitors cannot gain close visual and physical access to the wealth of detail in the room. And if lighting is subdued to protect vulnerable pieces or to maintain the ambiance of period lighting, detail is further obscured.

To enhance the experience for all visitors, museums should add hands-on opportunities to supplement moving through these spaces.

Large photographs of objects that can be viewed up close, videos that "walk" a visitor through the spaces, and audio descriptions are additional methods to consider. (See Chapter 4, Communicating Content.)

Out-of-doors. Sometimes barriers necessary to protect the public put people with disabilities at too great a distance or are made of materials that obscure the exhibit. This is particularly an issue for zoos that rely on natural and artificial barriers to restrict the movement of their animal populations. Moats, steeply sided enclosures, and heavy fencing typically separate the wildlife from the public. A solution for visitors who cannot see over traditional high barriers is to install low, transparent "windows" in select areas that offer both visibility and protection.

When an animal enclosure is vast, many visitors, not just those with vision disabilities, may be unable to see the animals, even when the accessible route runs along the edge of the barrier. On a rotational basis, a zoo may consider housing a

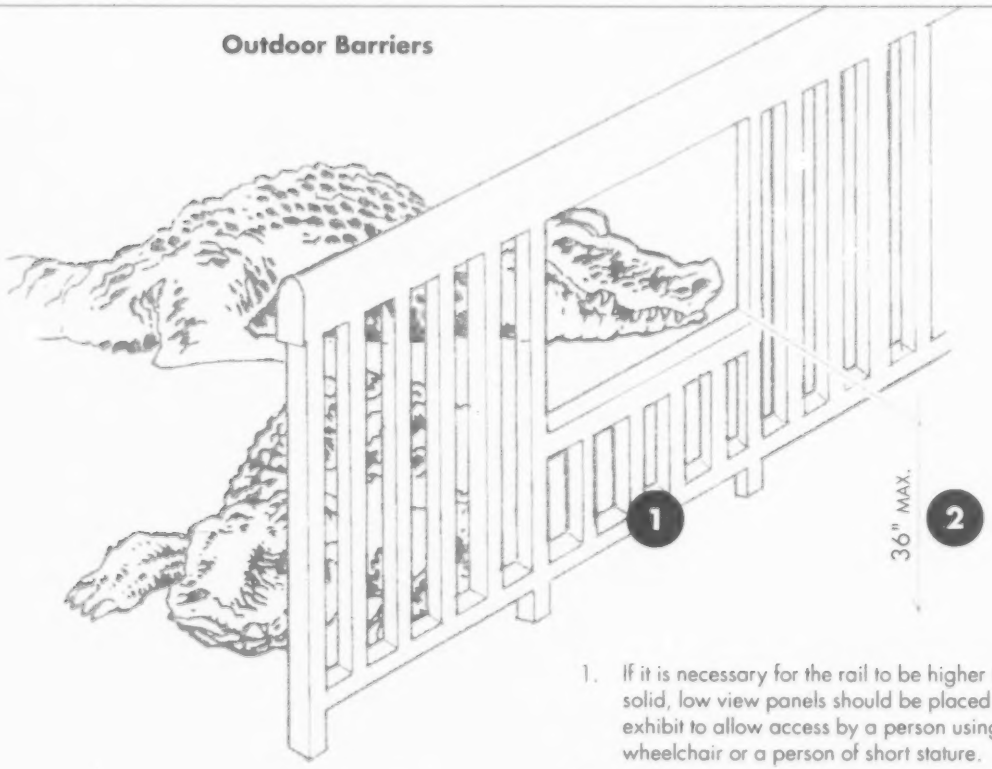
representative selection of animals in a more controlled environment for all visitors to examine more closely. Photographs, detailed brochures, and audio tapes can be important supplements.

For nature walks and other out-of-door situations where the public is discouraged from leaving the path, railings, fences, edge protection, and thick foliage can act as barriers. They should be sufficiently distinct in texture, shape, size, and height to offer a cane-detectable barrier, but must never become protruding objects.

E. Exhibits

The ADA Standards do not specifically address the design of museum exhibits beyond provisions for accessible routes, visual alarms, carpet and floor surfaces, and signage of the spaces in which the exhibit is displayed. However, the ADA's civil rights protections and emphasis on inclusion imply that all visitors should have equal opportunity to experience the main content of exhibits. So, whether creating new or modifying existing exhibits, it is important to make them accessible to people with physical, sensory, learning, or cognitive disabilities.

Outdoor Barriers



1. If it is necessary for the rail to be higher than 36", solid, low view panels should be placed at each exhibit to allow access by a person using a wheelchair or a person of short stature.
2. The bottom edge should be lower if children are anticipated as a key part of the viewing audience.

In creating accessible exhibits, pay careful attention to how objects are displayed within cases, how labels are used, how lighting is designed, and how the information is delivered. The following sections discuss the applicable human factors and specifications from the ADA Standards, such as the requirements for "accessible route," "protruding objects," "space allowances and reach ranges," and "controls and operating mechanisms."

Chapter 4, Communicating Content, page 111, discusses methods of providing information so that people have choices of how to access exhibit content.

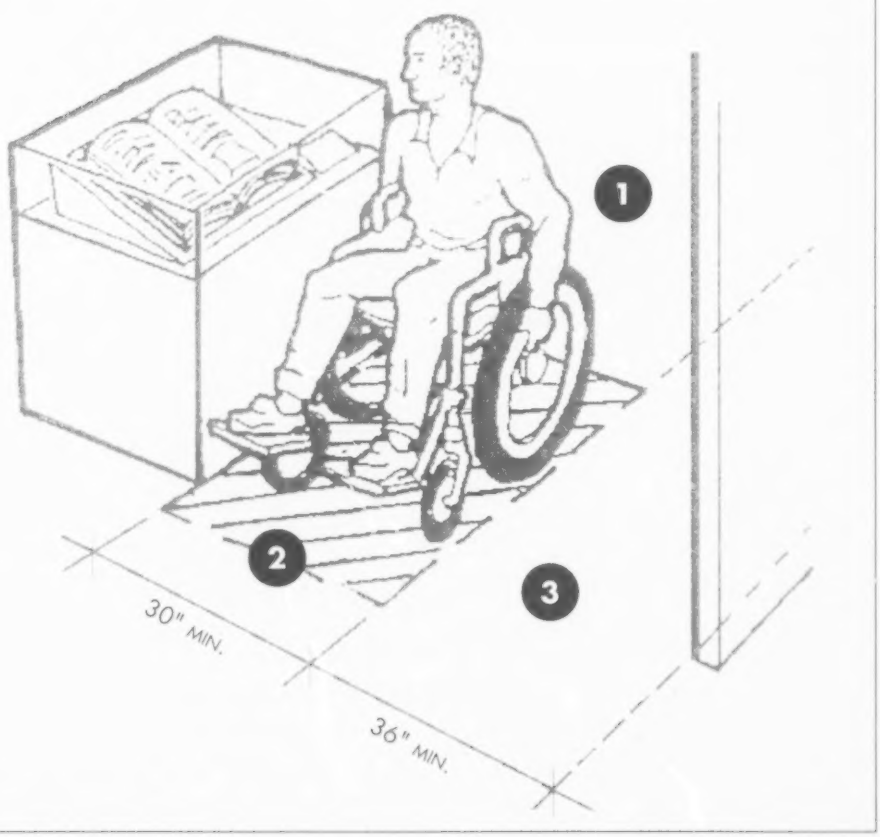
1. Display Cases

Typically, display cases are either free-standing or wall-hung. An accessible route should connect to or overlap a 30-inch wide by 48-inch long clear floor space located on each viewing side of a display case or exhibit.

Free-standing Display Cases. All display cases should allow viewing by people who use wheelchairs or are standing, be they short or tall. The ADA Standards state (4.1.7—Accessible Buildings: Historic Preservation): "exhibits and signage displayed horizontally (e.g., open books), should be no higher than 44 inches above

Clear Floor Space at Typical Free-Standing Display Case

1. Parallel approach allows user to get sufficiently close to view an object. Forward or perpendicular approach is often necessary at interactives (See page 92.)
2. 30" X 48" clear floor space.
3. Accessible route must connect with the clear floor space—other visitors will be able to pass a visitor in a wheelchair who has stopped to view an object if the clear floor space is to the side of the accessible route.



Display Case with Recessed Pedestal

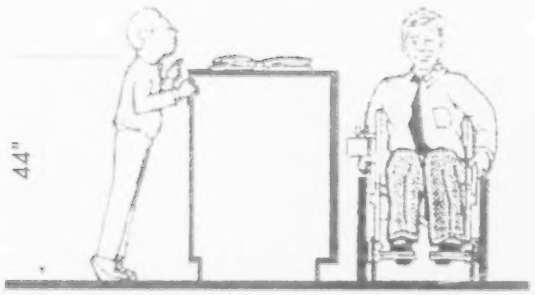
1. Cane-detectable element not required if overhang is 4" or less.

the floor." However, most experts who practice exhibit design for people with disabilities suggest a much lower dimension to make the content of cases accessible.

The eye level for people seated in wheelchairs or in scooters ranges from 42 inches for a young person between the ages of 9 and 12 to 51 inches for a tall male. This tells us that items laid flat in display cases at 44 inches, such as books and labels, are too high for many if not most visitors using wheelchairs. A preferable maximum height would be 33 to 40 inches above the floor.

Display Cases on Pedestals. If objects are displayed on a solid, free-standing pedestal protected by a vitrine or transparent case, the bottom of the case should be mounted between 33 and 40 inches above the floor, provided part of the experience is not to look into or down upon the object. If, on the other hand, the objects are to be viewed from above, such as a bowl with a

44-Inch Display Height



44" to top of viewing surface is too high for many people.

Low Free-Standing Display Case Visitor Is Expected to Look Down Into Object

Key to ADA Requirements: ★ = Title II, ■ = Title III

design on its interior or a flat book, the top of the vitrine (not the base) should be no higher than 36 inches. It also is preferred that vitrines be as shallow as possible to allow all visitors to see objects up close.

Display cases with a recessed pedestal, as shown in the accompanying illustration, provide additional maneuvering space and allow people using wheelchairs to pull up closer to the viewing area. Such a display case is not a protruding object if cane-detectable side walls are provided.

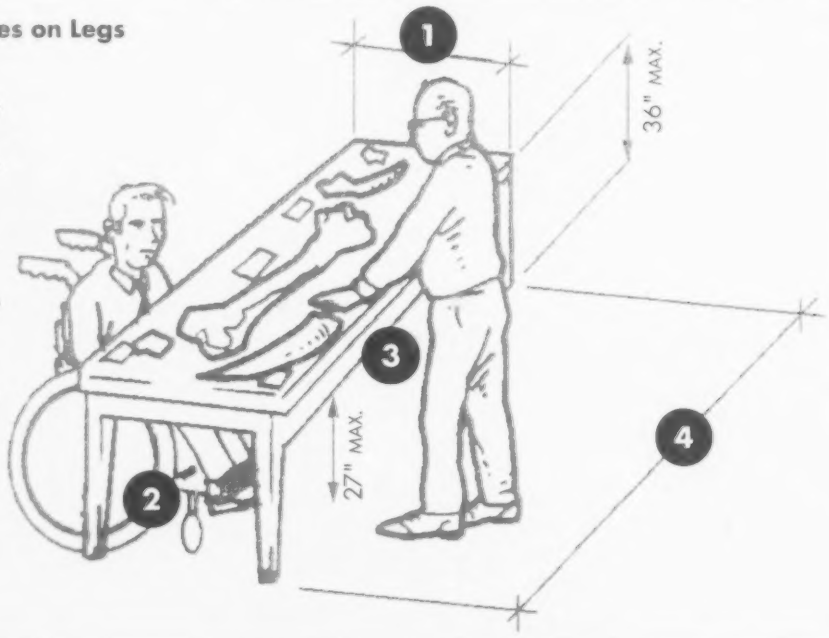
Display Cases on Legs. Free-standing cases with sides and glass covers that can only be viewed from above should be no higher than 36 inches. Because the types of exhibits described here are not interactive, it is less critical for the visitor using a wheelchair to be able to pull up under the case than for it to be sufficiently low to be seen into from above. (See page 86 for discussion of interactives.)

Free-standing cases not set on solid bases can pose problems for people who are blind. To prevent cases on legs from being a hazard and to make them cane detectable, the bottom of the case must be within 27 inches of the floor if the legs are more than 12 inches apart. Twenty-seven inches to the bottom of the case also provide the minimum knee clearance required for a wheelchair.

Improving Accessibility of Free-Standing Display Cases. The next three illustrations present a range of possibilities to achieve accessibility—from the simple economical "fix" that can be done immediately or in the near future, to the optimum situation where access is planned from the beginning. What a museum might do immediately to ensure that an interactive exhibit, one that includes computer monitors and keyboards, is accessible may be very different from what it does when creating a new exhibit—especially in light of continuing advances in computer interfaces.

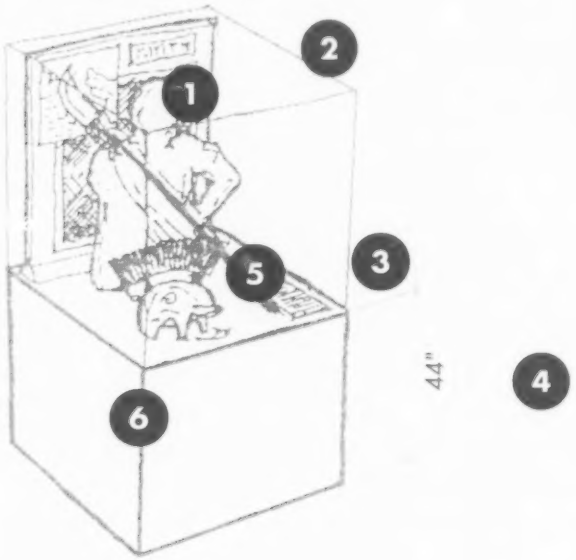
Display Cases on Legs

1. The depth and width must not be so extreme as to place objects out of view for visitors with low vision or people with a mobility disability.
2. Open area below helpful for people using wheelchairs—especially when viewing from above.
3. Visitor with vision disability encounters edge of case with cane, thus avoiding running into case.
4. When legs are farther than 12" apart, the bottom edge of case must be within 27" of the floor.



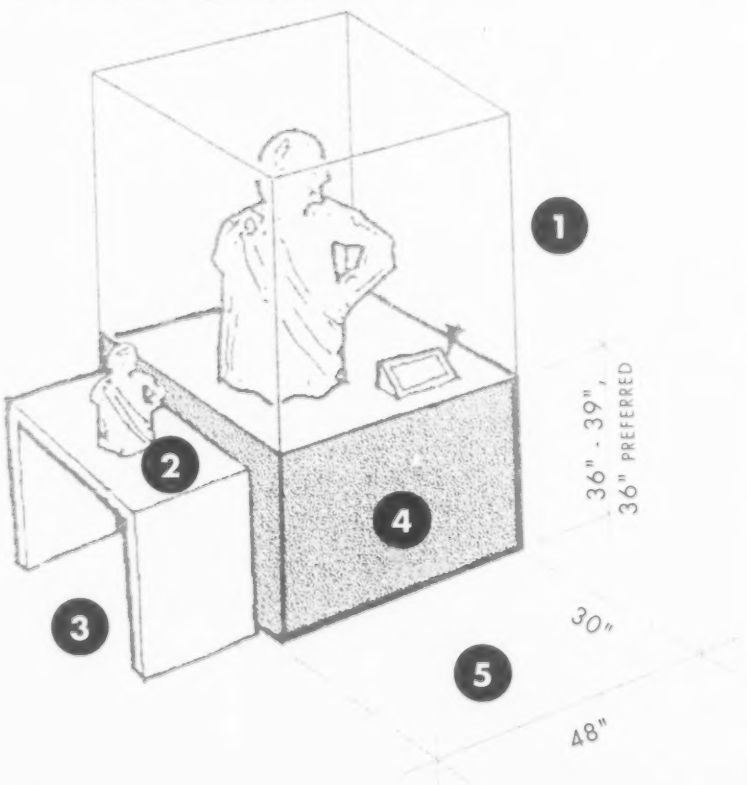
Free-Standing Display Case

1. Backdrop too complicated.
2. Case edges difficult to perceive.
3. Flat label with small type and lengthy, complicated text.
4. Pedestal too high for some people.
5. Too many layers of objects.
6. No attempt to provide comparable experience for people with visual disabilities.



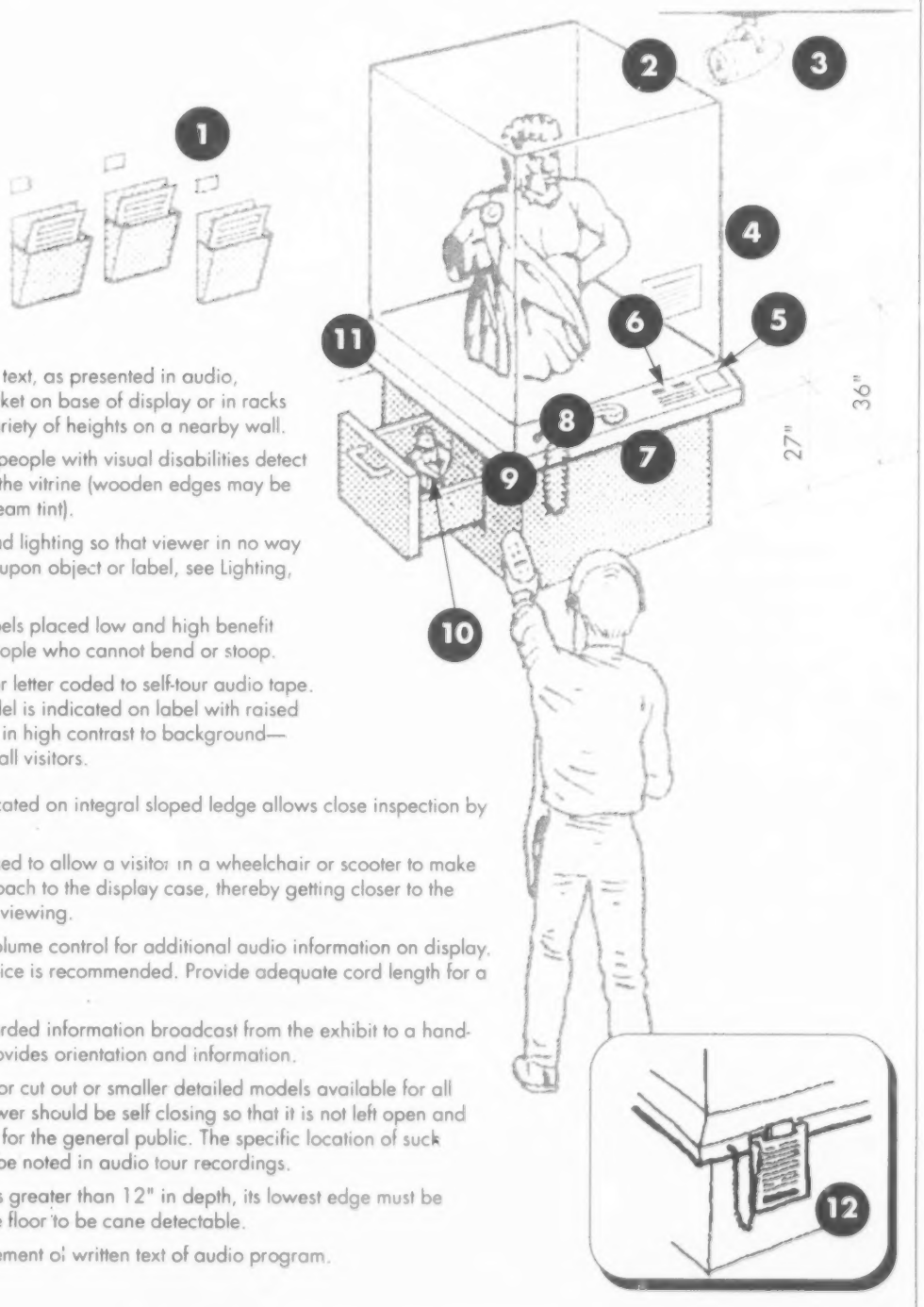
A Better Free-Standing Display Case

1. If vitrine is clear on all four sides, care should be taken in the placement of other objects around the exhibit to reduce visual clutter.
2. Small model for tactile review either mounted near exhibit or provided by docent.
3. Knee space for a person using a wheelchair to pull under the table is possible in this configuration.
4. If the case is displayed in an area with low ambient light, some treatment such as highly contrasting material or color used on base, floor, and wall, may be necessary to help a visitor recognize the shape of the base and case.
5. Clearance for knee space is not required—the visitor in a wheelchair may make a side or parallel approach to the display.



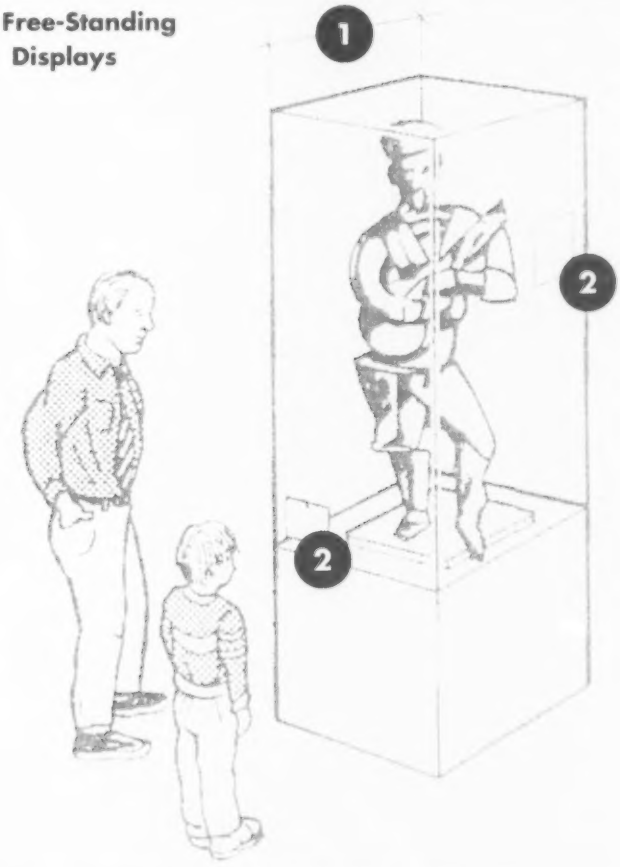
Display Case with Many Universal Design Features

This display case may be considered ideal—it offers options from which to pick and choose within budget



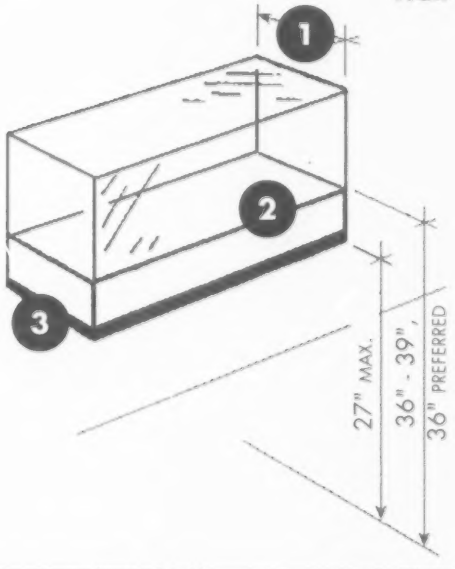
1. Identical written text, as presented in audio, available in pocket on base of display or in racks mounted at a variety of heights on a nearby wall.
2. Seam tint helps people with visual disabilities detect the presence of the vitrine (wooden edges may be used in lieu of seam tint).
3. Position overhead lighting so that viewer in no way casts a shadow upon object or label, see Lighting, page 105.
4. Identical text labels placed low and high benefit short and tall people who cannot bend or stoop.
5. Tactile number or letter coded to self-tour audio tape. Presence of model is indicated on label with raised lettering (tactile) in high contrast to background—can be read by all visitors.
6. Display label located on integral sloped ledge allows close inspection by all user
7. Pedestal recessed to allow a visitor in a wheelchair or scooter to make an angled approach to the display case, thereby getting closer to the object for better viewing.
8. Hand set with volume control for additional audio information on display. A clear, male voice is recommended. Provide adequate cord length for a tall adult.
9. A system of recorded information broadcast from the exhibit to a hand-held receiver provides orientation and information.
10. Life-sized statue or cut out or smaller detailed models available for all visitors. The drawer should be self closing so that it is not left open and create a hazard for the general public. The specific location of such drawers should be noted in audio tour recordings.
11. If sloped ledge is greater than 12" in depth, its lowest edge must be within 27" of the floor to be cane detectable.
12. Alternative placement of written text of audio program.

Tall Free-Standing Displays



1. Shallow display case makes it easier for visitors with low vision to view objects.
2. Labels with identical text.

Wall-Hung Display Case



1. Less than 4" in depth if bottom is above 27" high; more than 4" in depth if bottom is 27" or lower.
2. Floor of case.
3. Cane-detectable apron.
4. Raised button with tactile lettering activates audio version of text.

Wall-hung Display Cases. Recessed as well as projecting wall-hung cases should have the bottom or floor of the case mounted no higher than 33 to 40 inches above the floor—36 inches is preferred. Small objects should be displayed no higher than 40 inches to their centerline. Objects placed above 40 inches will be visible only from the side or below by most seated and short viewers.

If a wall-hung display case projects into the room more than 4 inches, it can become a protruding object and thus a potential hazard for visitors with vision disabilities. Cases that project more than 4 inches must have their bottom edge at or below 27 inches from the floor so as not to be a protruding object. This does not mean the bottom of the glass or display area must be at exactly 27 inches, but it does require that an integral component of the case, such as an apron, skirt, or wire frame, be within the cane-detectable range.

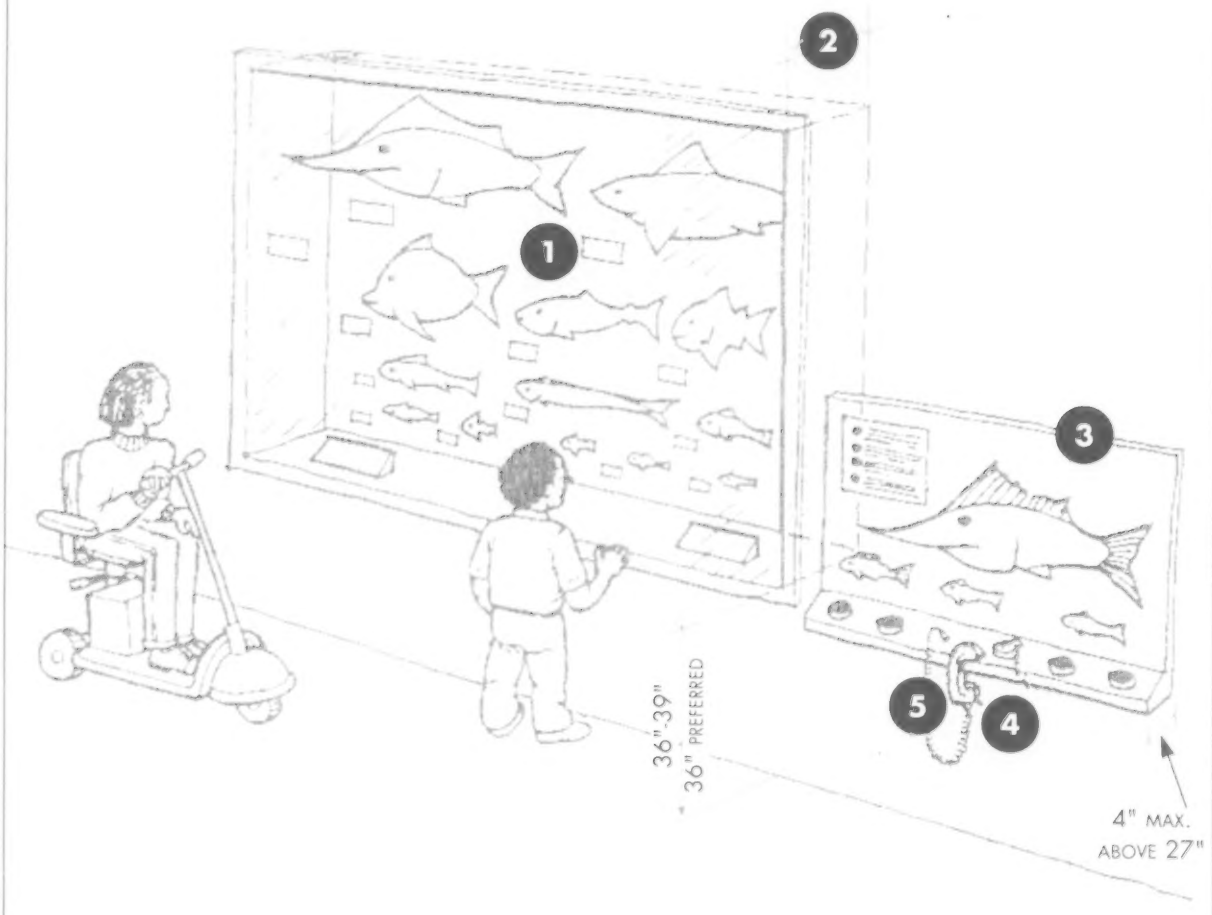
Other possible options are shown in the illustration on page 85. Architectural elements, such as a perpendicular wing wall, may serve as cane-detectable barriers. Other items such as a planter or other object that is not easily moved by visitors or staff during the course of routine cleaning also may be used as a cane-detectable barrier. (See page 68 for additional discussion of protruding objects.)

Wall-mounted cases with their bottom edge at exactly 27 inches will satisfy the vertical specification for knee space, if so desired, and provide an element within the cane-detectable range. When cases have elements that are below 27 inches, a person using a wheelchair or scooter can only make a parallel approach to the case.

In addition, if wall-mounted cases have clear sides and project into the room, the intersection of sides and front, as with vitrines, should be rounded to protect people with low vision from the edges of the case. Although crucial for people with low vision, edge treatments can be equally important for any visitor who may be focused on the object displayed in the case and may have lost sight of the boundaries of the case itself. Very large cases with glass fronts that might, for example, enclose a tableau of costumed mannequins may sometimes be mistaken for wall openings. To prevent this, the exhibit area should be well lighted with contrasting colors and textures used on the case floor, walls, and exhibit hall floors. A highly contrasting base is a good indicator of the edges of an exhibit. The glass of the case could be installed above a low wall, from 24 to 36 inches high, to further define the enclosed area. The glass should have rounded edges to provide additional visual cues.

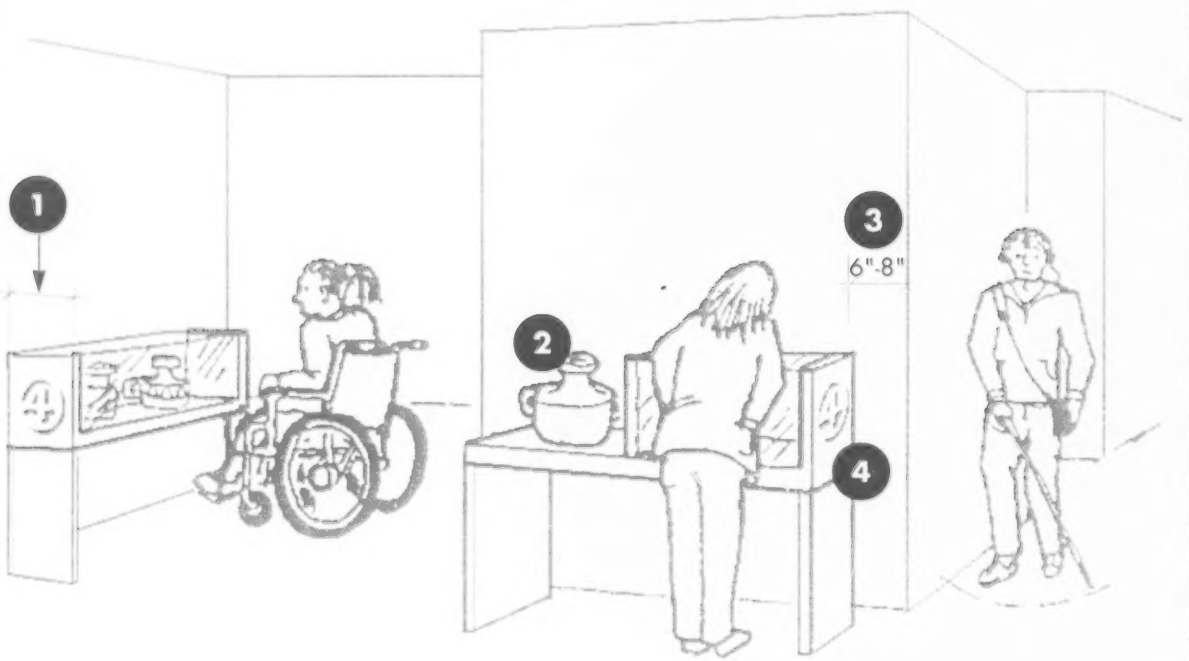
Small items intended for visitor examination in detail should not be positioned in large cases unless it is shallow and the items are placed close to the front.

Recessed Wall-Mounted Display Case



1. Whenever possible larger items should be placed toward top of case and smaller objects toward bottom of case.
2. Shallow depth of case preferred for ease of viewing.
3. 3-D tactile model—case has no glass cover. Not all items in exhibit are included in the tactile display—at least several representative samples should be presented.
4. Volume control.
5. Hand set with cord long enough to reach the ear of a tall standing person.

Accessible Wall-Mounted Display Cases

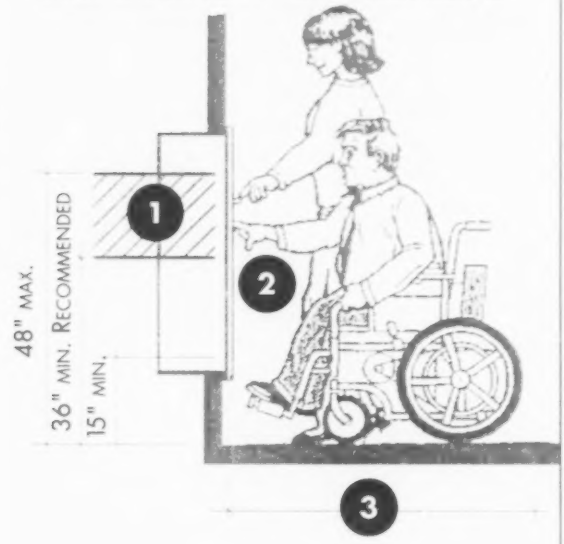


1. Depth can be any dimension—however, if greater than 4", a wing wall or some other cane-detectable element of the case must be present at or below 27".
2. Tactile model of key object on display.
3. Case should be stepped back from corner so when visitors with a vision disability round the corner, they do not encounter the end of the case.
4. Tactile numerals coded to self-guided tour located in a standardized location.

2. Interactive Exhibits

Interactive exhibits or "interactives" are often referred to in other documents as "hands-on exhibits" or "manipulatives." For the purposes of this book, interactives are defined as those exhibits designed to elicit both physical and intellectual responses from visitors. The exhibit may prompt the visitor to initiate an action, select an option, or solve a problem. The physical action exerted may be as simple as pushing a button, listening with an earphone, looking through a viewer, or flipping a flash card. It could also be more complicated, such as performing a multi-step process that involves feedback and causes the transformation of an entire system.

High and Low Forward-Reach Range



1. Ideal range. The recommended range of 36"-48"makes use easier for standing or seated visitors.
2. No obstructions to interfere with reach.
3. Length of clear floor space for a wheelchair — 48" minimum.

When designing new interactive exhibits, many of the specifications related to display cases apply. (See previous section.) ★ ■ **The exhibit must be on an accessible route and have sufficient clear floor space for a person using a wheelchair to approach and interact with the exhibit. In addition, if consoles or work surfaces are provided, at least some should be at an appropriate height and have controls that are within reach and easy to use** (including touch-screen computer controls). Labels, whether text or audio, should be accessible to all; response indicators to specify when an action has been executed should be understandable by people with sensory or perception disabilities; and audio-video presentations should be augmented with captioning and provide, when necessary, descriptions of video scenes.

To design an interactive for successful use by a wide range of museum visitors—such as a person who uses a wheelchair, one who is of short stature, one who stands but has difficulty bending, or one who has a hearing or vision disability—the part of the exhibit that involves direct physical contact by the visitor should be adjustable or available at multiple positions. Depending on the nature of the exhibit, a reasonable approach may include providing adjustable-height displays/interactives, duplicate objects, or duplicate controls at different heights.

A key feature of any interactive exhibit is access to the controls. This section addresses the design of accessible wall-mounted and table-top interactives. Because such an exhibit's success depends on access to its interactive elements, this discussion includes reference to reach ranges for people who use wheelchairs.

Information on the actual type, shape, and operation of controls appears later in this section (See Controls, page 94.)

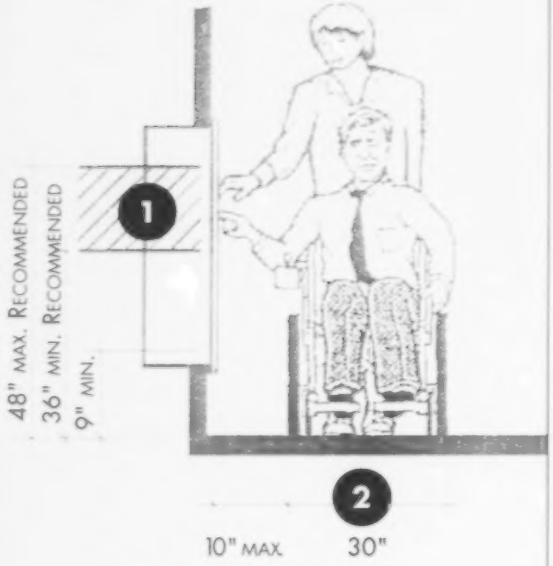
Wall-Mounted Interactive Exhibits. Wall-mounted interactives are designed generally with the assumption that the visitor will not remain in front of an exhibit for an extended period of time unless seating is provided. In this case, controls tend to be less complicated and the steps necessary to engage the interactive fewer.

Reach Ranges. ★ ■ **ADA Standards specify accessible reach ranges for controls mounted on a wall or other vertical surface that are not obstructed by walls, furniture, or other displays. The acceptable range for a person using a wheelchair is between 15 and 48 inches from the floor for a forward approach and 9 to 54 inches from the floor for a side approach.** However, some adults, children, and people of short stature may not be able to reach controls in this broad range.

This workbook recommends (as does the *Smithsonian Guidelines for Accessible Exhibit Design* and the Access Board's *Recommendations for Accessibility Standards for Children's Environments*) that the high and low side reach, as well as the high and low forward reach, for interactive elements be within a narrower range than specified in the ADA Standards. For maximum use by all visitors, the manipulative and accompanying instructions should be mounted 36 to 48 inches above the floor.

If the manipulative and instructions are mounted on a component that is horizontal to the floor, that part of the exhibit should be no higher than 36 inches to be readable by seated visitors. If the directions must be located above 36 inches, the panel should be tilted between 20 and 45 degrees to provide adequate line of sight for standing and seated visitors.

High and Low Side-Reach Range



1. Ideal range (36"–48").
2. Width of clear floor space for a wheelchair.

Like any interactive, one that is wall mounted may encourage the visitor to speak, listen, or even sniff. For people who use wheelchairs and people of short stature, the wall-mounted device should be 40 inches above the floor if visitors are to place their ear next to the object or speak directly into a particular area. If the exhibit requires a visitor to be close to the exhibit to see and/or hear something, no portion of it should prevent a person using a wheelchair from getting sufficiently close.

Many people who use wheelchairs will be unable to get sufficiently close to peepholes, microphones, and speakers that are mounted flush on a vertical panel. Fixed elements should not require the user to get any closer than approximately 18 to 24 inches to the equipment, unless the element is adjustable and can be brought forward to the user or unless partial or full knee space is provided.

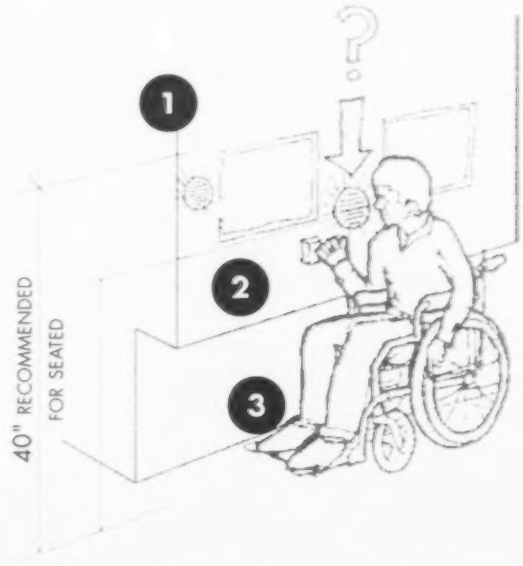
When knee space is not provided, viewers or peepholes, for example, could have an enlarging lens or camera feature that enlarges the image or brings the image into view for the user whose wheelchair, scooter, or other mobility device positions her away from the peephole window. Movable interactive elements that must be picked up by the user such as a hand-set or a microphone hanging in a cradle may present problems for people with limited strength and/or range of motion in the hands and arms.

When a visitor must peer into a very small viewer such as the eyepiece of a microscope, it is recommended that at least one microscope be mounted with its eyepiece no higher than 36 inches from the floor. However, some people—children using power wheelchairs or people with back or neck problems—cannot position themselves over equipment to look down. Such items pose special problems that are not simply remedied by placing them at a lower level. Because of the knee space requirements for close approach by people using wheelchairs, the item such as a microscope cannot be placed low enough. In addition, its angle still requires bending the neck and arching forward to look down.

A possible solution may be to mount the item on an angled surface that allows it to tilt toward the viewer, and make the entire assembly adjustable in height. If the element is movable, a trained docent could assist with retrieving and holding the item.

Wall-Mounted Interactive That Requires Close Contact

1. When interactives require viewing, listening, or speaking at close range, it is best if they have staggered heights to meet the needs of visitors of differing statures. High viewers may be necessary to accommodate the full range of users—including people who are tall or those who have difficulty bending.
2. Control to activate speaker.
3. Full knee space may be necessary for many people who use wheelchairs to get sufficiently close to access some wall-mounted interactives.



Other installation methods include providing a full-screen viewer or positioning exhibit elements at multiple heights.

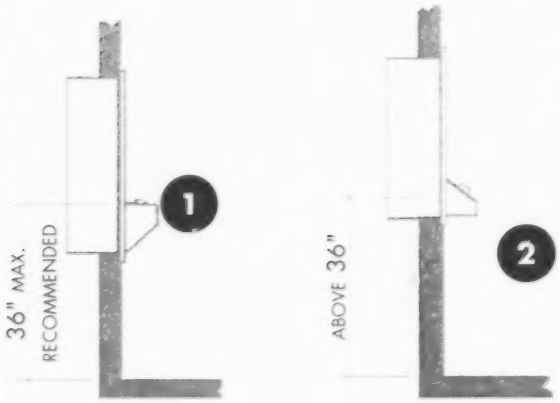
Interactive Exhibits Using Tables, Work Surfaces, or Consoles

To ensure that all museum visitors can use their interactive exhibits, museums should design them to be primarily experienced from a seated position, but also be capable of accommodating a range of standing visitors. Seating should be provided if the interactive exhibit requires more than a couple of minutes to experience or requires bending over while operating a control. Seating is essential for people who may not be able to operate controls while standing; e.g., people who use crutches and cannot release them to operate a control.

When seated, there is considerably less difference in people's eye height than when standing. Sitting may be regarded as an "equalizer." The average height of a wheelchair seat is 18 inches, the same height as the average museum stool. This height is suitable for most visitors, unless the exhibit's primary appeal is to children, for whom seating should be somewhat lower. New standards for children's environments are expected to be issued in 1998 by the Department of Justice.

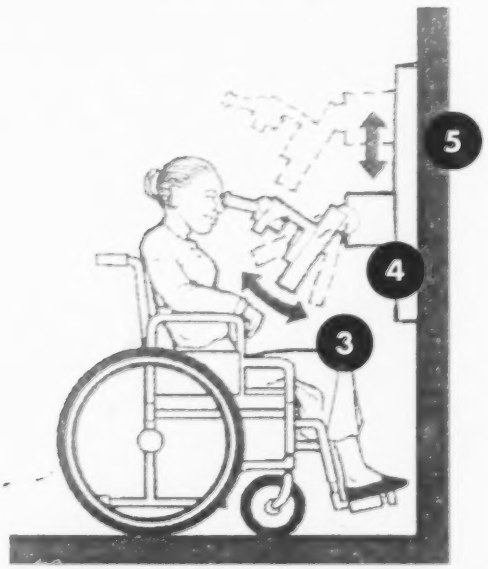
With adjustable height and movable seating, most visitors will have equal access to the exhibit and its interactive

Wall-Mounted Controls on Flat or Angled Surfaces



1. Wall-mounted controls on horizontal surfaces should not be higher than 36" above the floor.
2. Wall controls higher than 36" should be mounted on angled surfaces or be flush with the exhibit. Above 42" wall controls should be vertical.
3. Angle adjusts.
4. Microscope securely anchored in place.
5. Height adjusts.

Adjustable Height and Adjustable Angled Stage for Microscopes and Other Viewers



elements. Note: If the chairs have casters, they should be equipped with a hand-released brake that can be activated to prevent the chair from rolling out from under a person attempting to sit or stand.

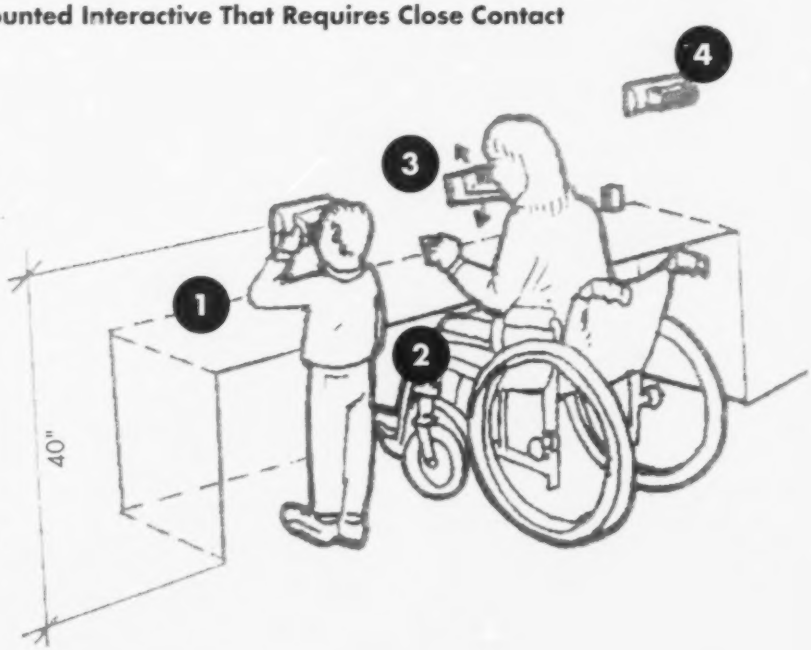
Table, Work Surface, and Console Height. ★ ■ **According to the ADA Standards, the top of an accessible tabletop or work surface can be mounted from 28 inches to 34 inches above the floor.** This requirement is intended for those surfaces where a visitor is involved for a period of time in a complex task such as writing, assembling an item, or operating multiple controls. To have full accessibility, a person using a wheelchair should be able to make a forward approach and roll into knee space. (See page 92.)

If the user encounters interactives where parallel (side) access is sufficient and little interaction is expected, there may be more latitude in the height of the counter and no need for knee clearance. The complexity of the actions required of the visitor, combined with the need to be able to look into a case where an action occurs, may dictate that the same viewing requirements needed by people sitting at a display case be provided for interactive exhibits.

For a tabletop exhibit to be accessible both to people using wheelchairs and those standing, it should be 34 inches in height. As a work surface, this is a little high for seated adults. Thus, for interactive exhibits at this 34-inch height to be most usable, controls and directions should be no more than 10 inches from the front edge of the table and placed on a surface that tilts downwards at least 20 degrees. This brings the controls low enough for someone seated and still within a usable range for a standing visitor.

Wall-Mounted Interactive That Requires Close Contact

1. Power or manual viewer tilt adjustment.
2. Full knee space is necessary for many people who use wheelchairs to get sufficiently close to access some wall-mounted interactives.
3. When interactives require viewing, listening, or speaking at close range, it is best if they have staggered heights to meet the needs of visitors of differing statures.
4. High viewers may be necessary to accommodate the full range of users, including people who are tall or those who have difficulty bending.

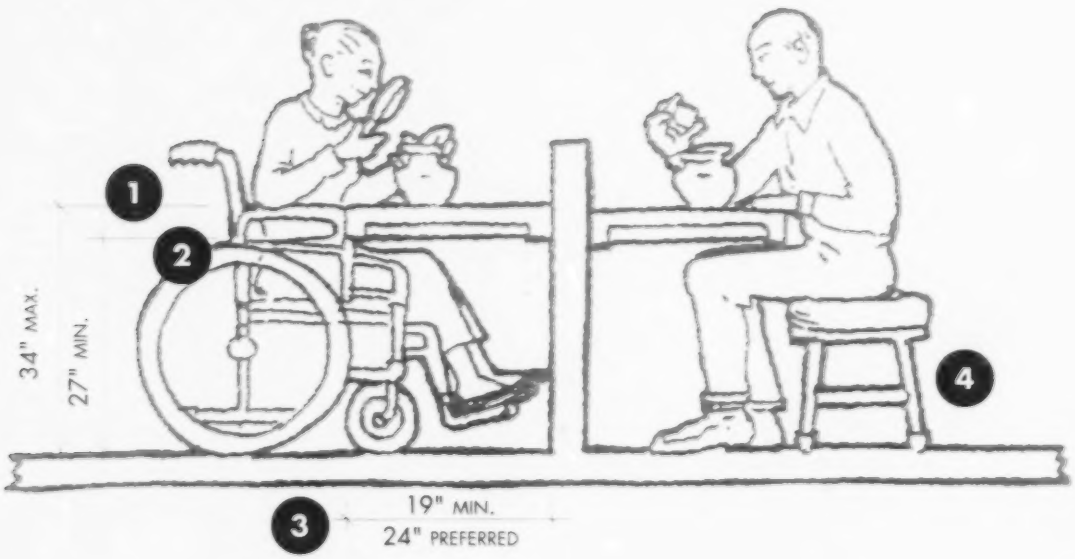


Reach Ranges. ★ ■ **Figure 5 of the ADA Standards gives specifications for reach ranges over an obstruction such as a table or work surface. Generally, a person using a wheelchair who can roll into a knee space can reach up to 48 inches if the table or shelf is less than 20 inches deep. When the table is between 20 and 25 inches deep, the reach limit drops to a maximum of 44 inches from the floor.**

★ ■ **If lack of knee space prevents a person using a wheelchair from pulling under a table, then a side approach must be possible. Any interactive element or control must be no higher than 54 inches above the floor to be usable. Elements on surfaces that are mounted deeper than 25 inches are out of reach, regardless of the availability of knee space.**

This book recommends that when controls must be mounted at the back of an exhibit, they be lower than specified in the ADA Standards. It is preferred that controls be mounted as close to the top of the table surface as possible, and no higher than 40 to 42 inches above the floor, so visitors may rest their arms or elbows on the surface and not have to stretch in an awkward way that prevents them from enjoying the exhibit.

Height of Surface and Height and Depth of Knee Space at Work Station



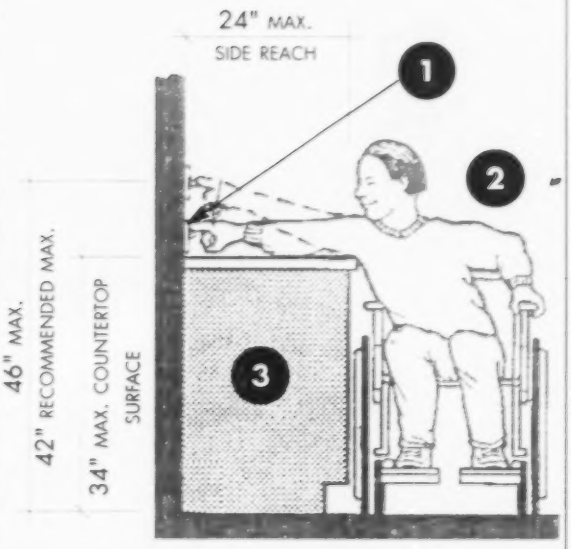
1. 32" preferred because 34" is too high for many people using wheelchairs.
2. 29" preferred to allow wheelchairs with standard arms to be pulled under table.
3. Knee space depth.
4. Movable seating shifts out of the way to allow person in a wheelchair to pull under table.

Knee Space. It is preferred that visitors who use wheelchairs be able to make a head-on or forward approach to an exhibit rather than a side approach. To do this, the ADA Standards specify a knee space at least 27 inches high, 30 inches wide, and 19 inches deep.

The 27-inch vertical dimension must be clear at the front edge, which means any supporting structure or apron running along the front of the work surface or tabletop must be above the 27 inches. If equipment needed to run the exhibit occupies part of the knee space, designers can use ADA Standards requirements for knee space at drinking fountains and lavatories, which allow pipes and bowls to be covered within specific dimensions. (See illustration on page 93.)

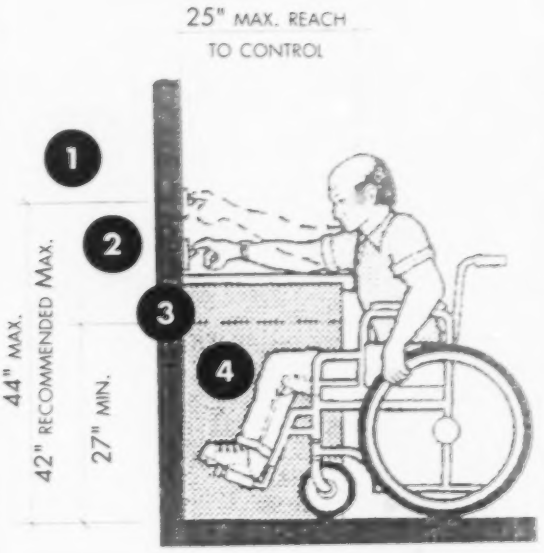
Knee space at the minimum width of 30 inches requires people who use wheelchairs to maneuver very precisely. To make rolling up under a work surface more comfortable and to allow an angled approach,

Maximum Side Reach Over an Obstruction



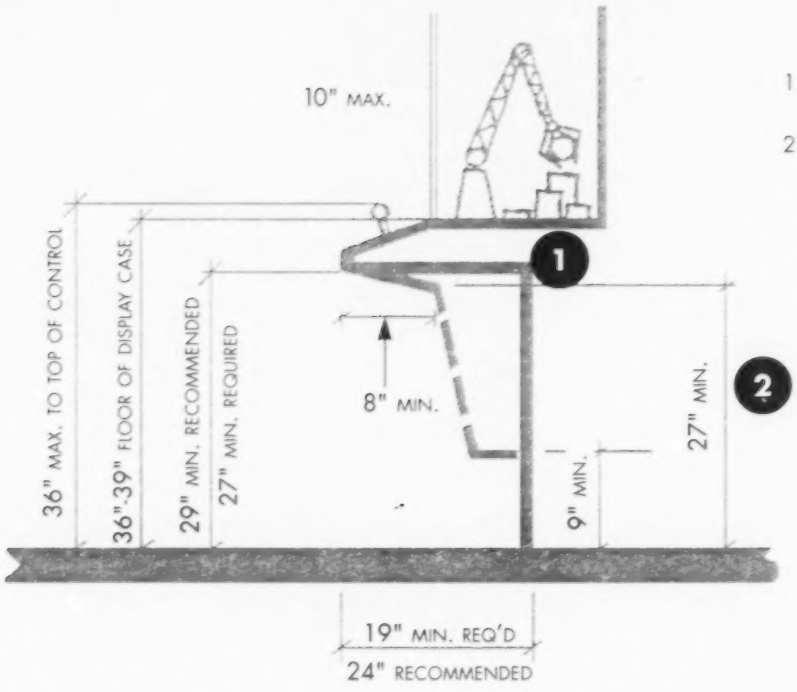
1. Control should be set as close to work surface as possible.
2. User in a position parallel to exhibit for a side-reach to control.
3. No knee space.

Maximum Forward Reach Over an Obstruction



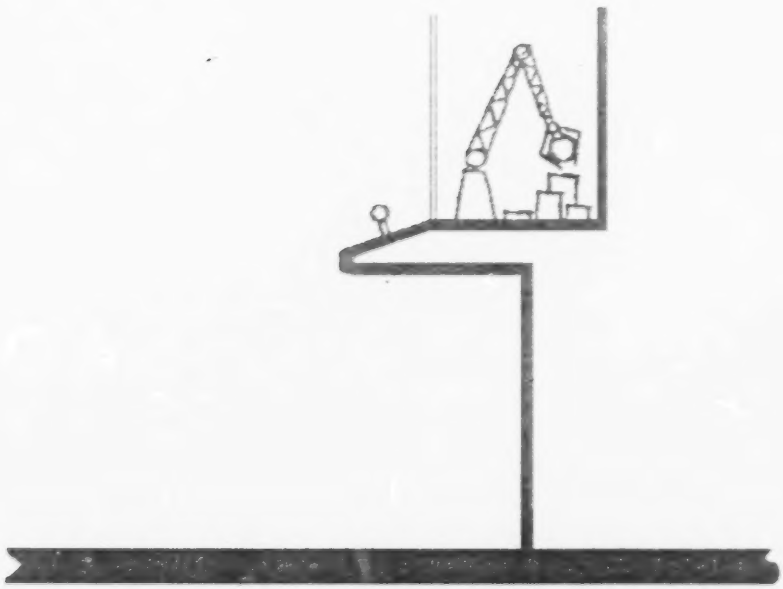
1. Standards allow 44" maximum mounting height if reach to control is 20"-25"; 48" maximum height if reach is less than 20".
2. This workbook recommends a maximum mounting height of 42" when reaching over an obstruction—regardless of whether knee space is provided.
3. Vertical clearance at knee space.
4. Clear knee space should be as deep as the reach distance.

Maximum Encroachment Permissible at Knee Space



1. Standard knee space required at desk, tables, etc.
2. Knee space allowed at sinks and water coolers might be used at interactives with special equipment.

Preferred Knee Space



wider knee space is preferred. If the knee space width is increased to 60 inches, more than one person can use the exhibit at the same time; e.g., a parent may assist a child or two people may work together.

Controls

Design of Controls. Some visitors may have limited strength and range of motion, while others may have limited or no use of their hands. Some visitors may not be able to discern if they have operated a control successfully.

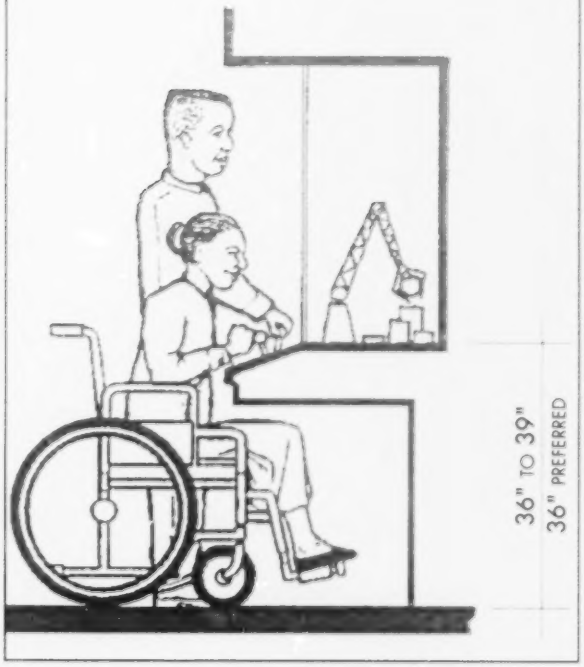
All controls and interactive elements should be easy to use and operable with a closed fist and not require more than five pounds of pressure. To test whether a control is adequate, try to operate it with a loosely clenched fist applying about five pounds of pressure—about the force required to flush a residential toilet. If possible, incorporate feedback, using visual, audible, and tactile clues, so that people who are deaf or blind will know if they have successfully activated the control.

★ ■ **The ADA Standards state that controls must be: 1) operable with only one hand, 2) require no tight grasping, pinching, or twisting of the wrist, and 3) require no more than five pounds of force to operate.** In addition, controls should be 3/4 to 1 inch in their smallest dimension. Nonslip surfaces (e.g., rubber or ridges on a trackball) make them easier to use.

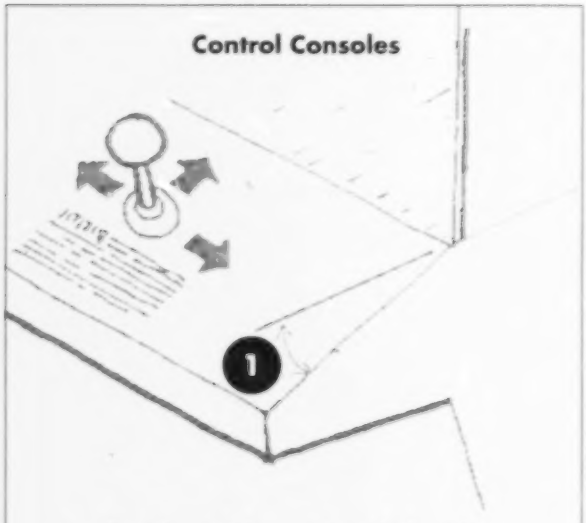
However, exhibits such as a large floor-mounted series of levers that visitors push against to learn how fulcrums exert mechanical leverage to move a heavy weight should not be eliminated. Instead,

Knee Space at Interactive Exhibits

Where multiple controls are provided at an exhibit and the user is expected to remain for some time, adequate knee space should be provided.



Control Consoles



1. Control panels that require multiple and complicated actions should not slope so steeply that a person's hand or arm resting on the panel slips off. An angle of 20° allows most people to read control instructions and labels from either a standing or sitting position.

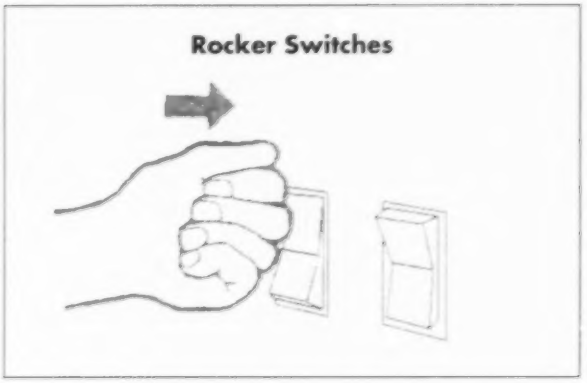
for those who cannot experience the full-scale exhibit, provide alternatives such as diagrams, a video tape, computer graphic animation, or a smaller-scale model showing the linkages between controls and moving parts.

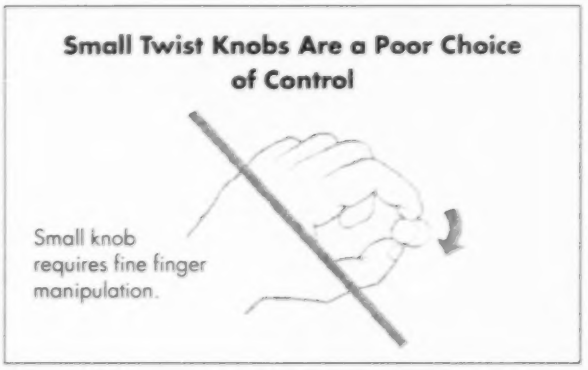
Typical Successful Controls. Certain types of mechanical controls are more accessible than others. Small-diameter knobs with fingertip controllers are not easy to grip and turn and should not be used. Levers, loop handles, push-buttons, and rocker switches are examples of accessible controls. They require little force and most people know how to operate them.

Typically, electronically operated controls offer greater accessibility than mechanical controls because they require less strength, coordination, and dexterity. An action resulting from a few keyboard strokes or pressure on a handplate is usually easier to execute than pushing a series of mechanical levers. (Computer keyboard and touch-screen system controls are discussed in this chapter in the section entitled "Interactive Exhibits Using Computers and Monitors.")

There are several factors to keep in mind when designing electronic controls. They should be large, in high contrast with their background, clearly marked, and logically placed. When possible, the action of the control should relate as clearly as possible to the function being controlled. Finger depressions, tactile lettering, raised symbols, or overlay grids can help people with limited or no vision locate where to press.

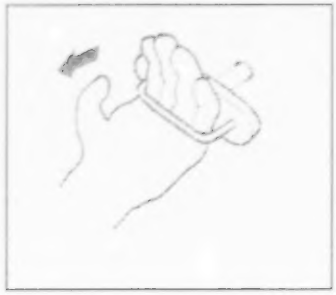
Common forms of electronic controls, including push buttons, joy sticks, and trackballs, are easy to use and familiar to most school-aged children and many adults. The style of push buttons used in video arcade games are ideally suited to exhibits. These give a substantial tactile "click" when depressed, providing feedback that contact has been made.





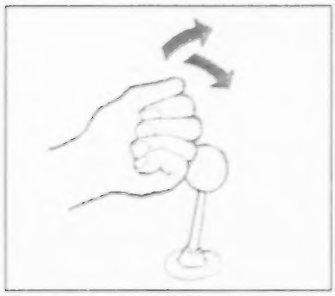
Lighted push buttons provide the user with visual feedback about what actions have been taken and what to do next. Some controls provide visual feedback by incorporating changes in color or position. Audible clicks and beeps also can help indicate when each step of the sequence has been successfully completed. The best control provides tactile, audible, and visual feedback at the same time.

Typical Successful Controls

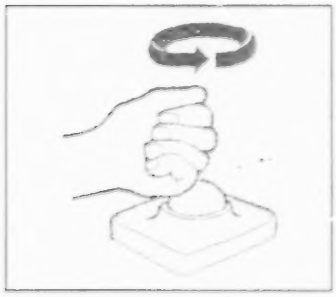


Loop Handles/Pulls

Loop should be large enough to allow a hand to be extended at least partially through it.



Toggles/Wand-Type Handles

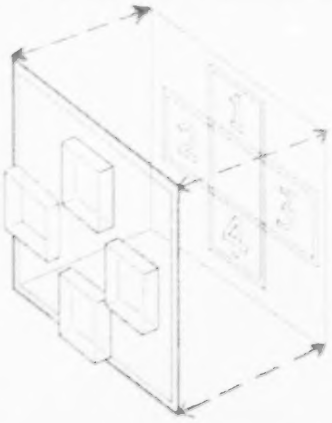


Trackballs

★ ■ **The ADA Standards require accessible fixed or built-in controls to be operable with one hand.** Exhibits should avoid controls that require simultaneous activation of two buttons, levers, etc., unless necessary for safety or if the goal of the exhibit is to involve more than one participant in a cooperative learning scenario. Some interactives require specific time delays—e.g., a mechanical valve may need to be closed within five seconds of being opened. The design should build in enough time that someone with limited range of motion can complete the sequence. When this is not possible, the label should indicate that the sequence is timed.

Control Labels and Instructions. Control labels should be presented in short sentences and in a step-by-step format for people who have difficulty reading English; e.g., people who are deaf or people who have certain learning disabilities. Instructions for people with cognitive disabilities

Tactile Overlays Make Flush Controls More Accessible to People with Vision Disabilities

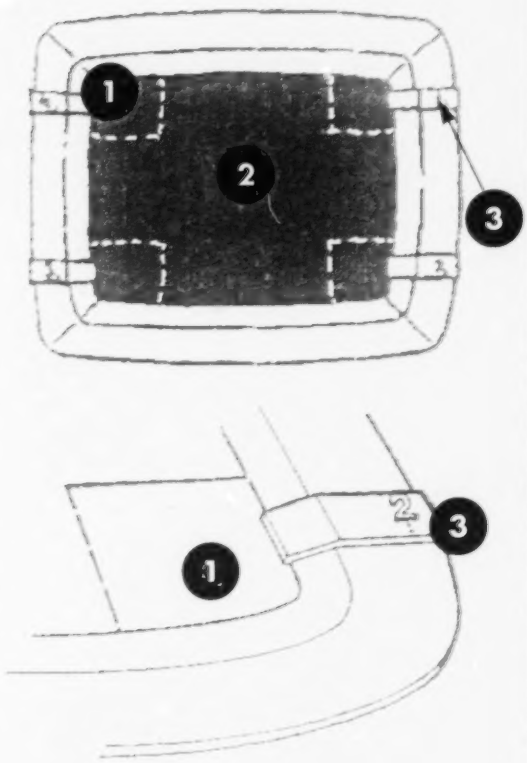


Clear, see-through plastic overlay with raised "button" shapes allows people who rely on touch to locate controls.

are more effective if participant action is required after each direction rather than after a string of directions. A step-action-step format assists people who have difficulty with short-term memory, or have short concentration or attention spans.

Controls should have tactile characters (with Braille, if possible) indicating their function for people with little or no vision. These may be placed directly below the control in a sharply contrasting color. If the control is a standard computer keyboard (i.e., in QWERTY format where the first keys of the top line of letters are Q-W-E-R-T-Y), additional indications may not be necessary since this keyboard format is so widely known. If the control mechanism uses a touch-screen, additional steps for accessibility must be taken. (See page 98.)

Screen Touch Points



1. Screen touch point.
2. Screen.
3. Touch-point indicator with raised characters and Braille.

Interactive Exhibits Using Computers and Monitors

Exhibits that rely on sophisticated technology, such as computers, can be a real advantage for those who do not have enough strength and dexterity to operate some mechanical controls and those visitors who may have reduced, or a loss of, hearing or sight. Using a variety of hardware and software combinations, a museum can provide interactive access to text, video clips, and sound on nearly any subject.

If an exhibit uses a single computer for content display, then that exhibit should be accessible to people with disabilities. If the exhibit is a multiple-user interactive, then at least one, and preferably more, of the work stations and/or monitors should be accessible.

Signage should indicate the accessible interactive. For example, in a multi-user exhibit, one of the stations could be equipped with a monitor that displays large-character images for a person with a vision disability. A second could have enough clear floor space and knee space so that the station is accessible to a visitor who uses a mobility aid.

The physical accessibility requirements of computer exhibits are very similar to those for tabletop interactives. The 34-inch table height discussed in

Interactive Exhibits Using Tables, see page 89, is not comfortable for either standing or seated users. Duplicate or adjustable height keyboards may be better solutions.

Because they demand less hand, wrist, and arm movement than does the traditional mouse, trackballs generally are easier for people with a limited hand or arm range to manipulate. Trackballs can also be easily positioned as needed. However, trackballs may be difficult for some people with hand-eye coordination difficulties, so alternate input devices may be needed. If possible, users should be able to use the keyboard and adjust the typing position to best accommodate their personal pattern of use.

Another computer input device is the touch screen. Although popular with younger audiences, touch screens are not easily used by people with vision disabilities. They also are somewhat less accessible to people with a limited range of motion and strength than other forms of electronic systems, unless their height and angle can be adjusted easily.

Current technology is evolving very quickly to make touch screens accessible for people with vision disabilities. One solution places the touch areas in predictable locations (e.g., at all four corners of the screen) so that people with vision disabilities or cognitive disabilities can find them easily. This eliminates the need to "dust the screen" with one's hand to find the touch area or to reorient oneself repeatedly with each new screen. *The Smithsonian Guidelines for Accessible Exhibition Design* suggests that touch-sensitive areas should be at least 3 inches in diameter since small touch areas require fine muscle control. If areas are too small, people with cerebral palsy or other mobility disabilities often activate unwanted areas instead of, or in addition to, those selected. Hand-sets connected to audio directions can be combined with touch-screen systems to make them more accessible.

Another system, the Talking Finger Tip, developed by Trace Research Center, provides audio output that lists the elements on the screen in a sequential order as the user drags a finger along the edge of the screen. An enter button allows the user to select the highlighted element.

Touch screens, according to Jeff Kennedy in *User Friendly: Hands-On Exhibits That Work*, should be mounted at a center-line height of 47 inches with a 12 degree upward tilt. A more flexible approach, however, places the upper limit of the touch screen at 44 inches with the capability of tilting 12-15 degrees in both an upward and downward direction. The tilt mechanism could be mechanical and moved with the assistance of a docent, or preferably, with an electrical switch operated by a joystick or similar mechanism that would allow independent operation by any visitor. Also see Reach Ranges, page 91.

For a monitor or screen that is not designed for touch-screen use, Kennedy suggests that the screen should be positioned within a viewing zone of 39 and 48 inches from the floor, a comfortable viewing height for all seated visitors. This is consistent with the single dimension given in the ADA Standards to define the maximum bottom edge mounting height of a mirror.

A person's viewing distance can be accommodated by moving his seat closer to or farther away from the screen. An adjustable chair could be provided for children to ensure they are high enough to see the monitor and reach the computer or video presentation controls. So that

both standing and seated visitors can see from side and front approaches, the monitor should tilt and swivel easily.

Computer-based exhibits can take advantage of large monitors and software features that enhance accessibility. These include scalable fonts, enlarged icons, adjustable responses for keyboard and mouse actions, and programmable keyboard shortcuts. Many of these features also appeal to audiences unfamiliar with computers because their purpose is to make the computer more user friendly. In addition, screen-reading software with audio output can be added so that people with vision disabilities are able to access text-based information. The key drawback to text-reading programs is that they cannot explain graphic images unless supplementary text is added to the file.

Additional Strategies to Make Computer Interactives Accessible. Following are recommendations for making computer interactives more accessible to a wider audience, and especially to people with hearing or vision disabilities:

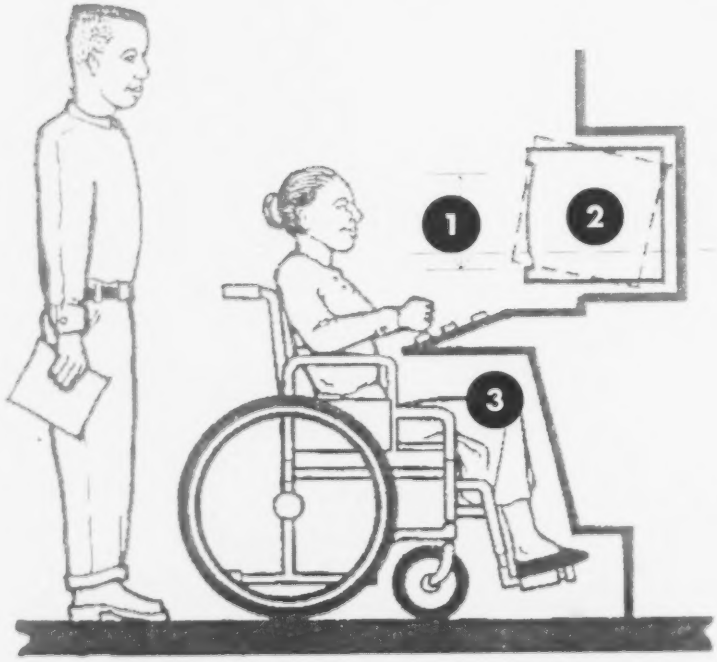
Larger monitors are easier to see.

To be legible, monitor displays should use a minimum of 14-point text for single-user screens and considerably larger fonts for repeater screens and multi-viewer presentations.

The monitor may be equipped with headphones and an audio track that describes the content of the display.

Computer Interactive with Keyboards or Other Complicated Controls

1. Comfortable viewing zone for people who are seated at a computer monitor is 39" to 48" above the floor.
2. Screen is adjustable to tilt at least 12° to 15° up or down as needed. This is particularly important for people who are very tall or short or who prefer to stand while activating controls.
3. Computer interactives that require the use of complicated controls or keyboards are best designed so that a person can sit while using them.



The monitor should offer captioned text at the bottom of the display.

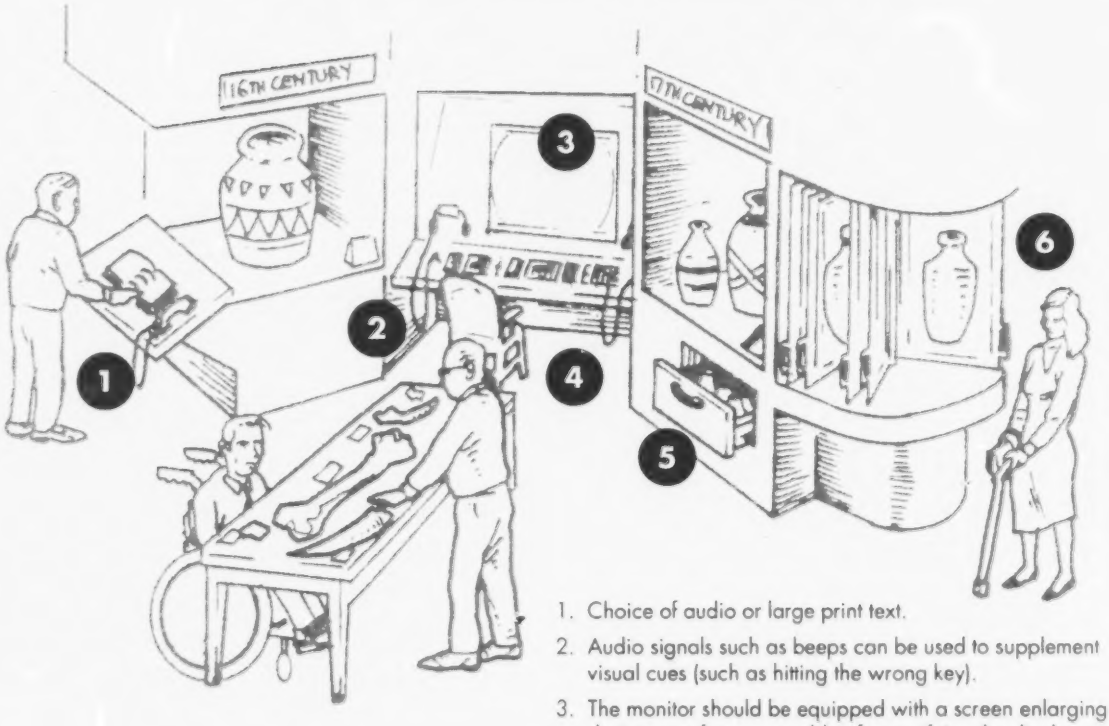
The work station may be equipped with voice recognition to input simple commands for visitors who have difficulty keying in commands.

The monitor should be equipped with a screen enlarging device or software capable of magnifying the display.

Audio signals such as beeps can be used to supplement visual cues (such as hitting the wrong key).

Museums that expect to rely heavily on computer access to exhibits should investigate the increasing number of hardware and software products with special features for people with disabilities. Some software is designed specifically for people with disabilities. Consult the manufacturers and the state rehabilitation department in your area for trained professionals

Display with Both Static and Interactive Elements



1. Choice of audio or large print text.
2. Audio signals such as beeps can be used to supplement visual cues (such as hitting the wrong key).
3. The monitor should be equipped with a screen enlarging device or software capable of magnifying the display.
4. Movable chair provides clear space when needed.
5. Tactile models.
6. Large images.

who can assist in finding the appropriate technology and funding sources.

If any of the equipment to run the exhibit needs to be below the work surface and occupy knee space, guidance on the maximum amount of space permitted to be obstructed should be drawn from the ADA Standard's knee space requirements for drinking fountains and lavatories.

Computers and interactive video now make it possible to design exhibits that convey more complex concepts. The design of the workstation and how users find their way through the information system are critical issues—especially for people with vision disabilities.

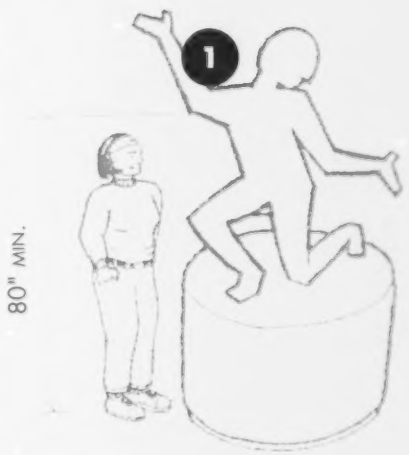
3. Sculpture

A work of sculpture should be displayed so that it neither becomes a protruding object nor an encroachment on headroom. If not appropriately installed, sculptures—because of their unpredictable projecting elements—can be among the most hazardous of protruding objects. If possible, work with artists to see if a base and/or barrier can be designed that is both integrated with the sculpture and also detectable by a long cane.

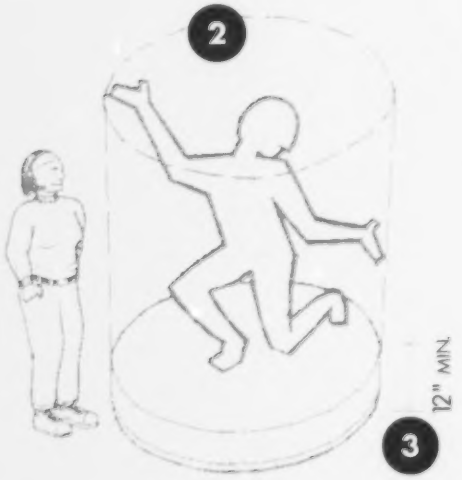
The accompanying illustrations present a variety of solutions for displaying large sculptures. Often a combination of alternatives works best.

Static Sculpture. Some sculpture may be displayed most easily on a

Eliminating Protruding Hazard at Large Sculptures

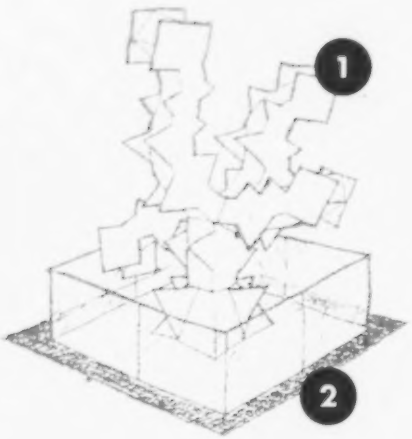


Recommended Platform Diameter for Large, Free-Standing Sculptures



1. If sculptural elements protrude beyond base or pedestal, it is recommended that they be above 80".
2. Imaginary envelope or perimeter beyond which elements of sculpture should not extend.
3. It is preferred that a platform be higher than 12" so that it is not a tripping hazard or misperceived as a step.

Sculpture Protected with Plexiglass Barrier and Change in Carpet Contrast



1. Sculpture with multiple protruding elements.
2. Contrasting carpet color.

cane-detectable pedestal that contrasts with the color and tone of the surrounding floor and wall surfaces. The pedestal should be designed so that all protruding elements of the sculpture below 80 inches are contained within an imaginary tube defined by the edge of the pedestal. (See illustration on page 101.)

Note: Wall-mounted sculpture may protrude no more than 4 inches unless a cane-detectable warning barrier is present. A simple solution to the problem of protruding objects is to place a detectable object beneath them, such as a planter, that is not easily moved by staff during the course of routine cleaning.

When a sculpture has numerous low-protruding elements, it may be necessary to surround the entire sculpture with a cane-detectable warning barrier that is standardized and consistently used throughout the museum. Trim or other edge treatment should be installed to alert visitors with reduced visual perception of the barrier's presence (See Barriers, page 74.) As solid trim might be a distraction for some sculptures, an alternative visual cue can be a high-contrast carpet strip in front of the barrier. (See illustration this page.)

Interactive Objects. For objects with moving mechanical parts a visitor is expected to manipulate, another installation method may be suitable. Position the interactive sculpture outside the circulation path and place a detectable warning surface on the floor.

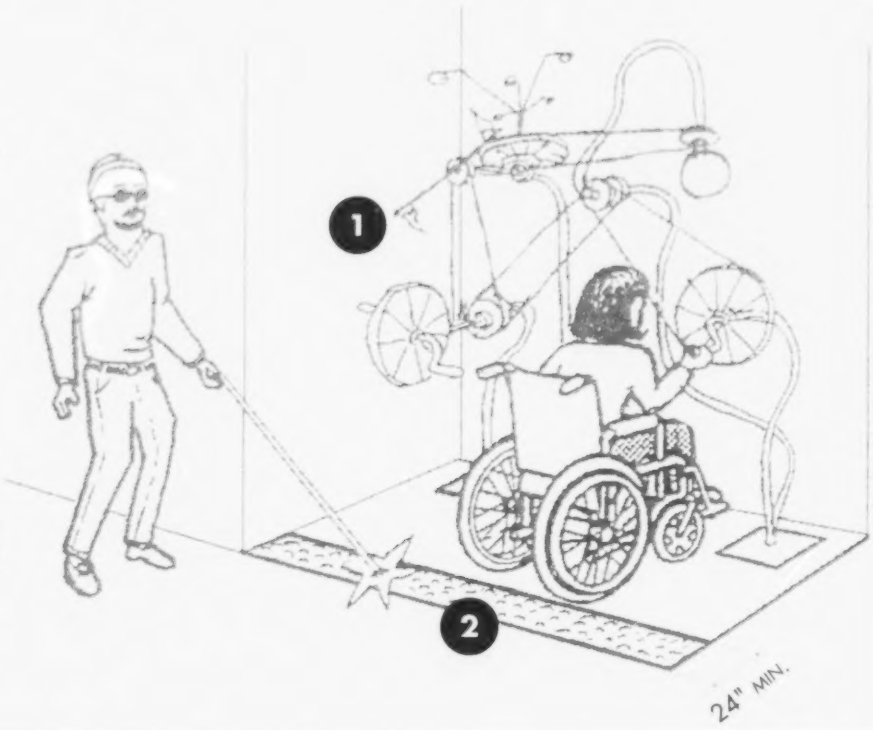
The ADA Standards describe a warning surface texture of raised truncated domes, but currently it is required only on platform edges in transportation stations or at bus stops.

The detectable warning material should contrast visually with the adjoining walkway and audibly in sound-on-cane contact or contrast in surface resiliency. A material change, such as carpet to nonslip tile, is perhaps one of the best detectable warning methods. Note: A floor-applied detectable warning is not sufficient in and of itself and should be used in combination with careful placement of the object outside the circulation path and a communication program that explains the meaning of the warning to visitors.

Sculptural Environments. Sculptural environments in which visitors move through the sculpture itself create special problems. The goal is to provide a circulation path free of hazards and protruding objects. Some sculpture may not be conducive to safe circulation; in those cases controlled circulation is critical. A

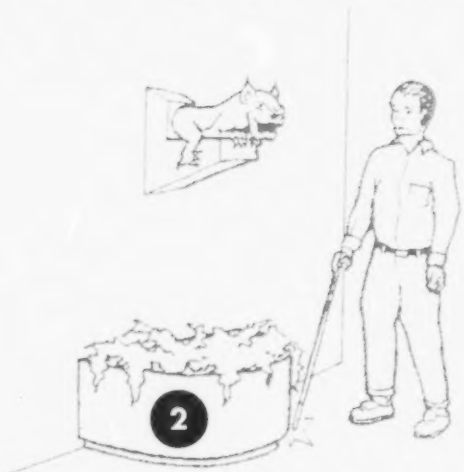
Interactive with Protruding Elements

1. When interactives with protruding elements cannot be protected with barriers, they should be positioned off the circulation path and indicated with a floor-applied, detectable warning surface.
2. High-contrast detectable warning that differs from adjoining walking surface in resiliency or sound on cane contact.



Protruding Object Hazard

Protruding Object Warning



1. Cane will not detect wall-mounted objects above 27".
2. When a sculpture has numerous low-protruding elements, it may be necessary to surround the entire sculpture with a cane-detectable warning barrier.

floor-applied detectable warning might be helpful in this situation.

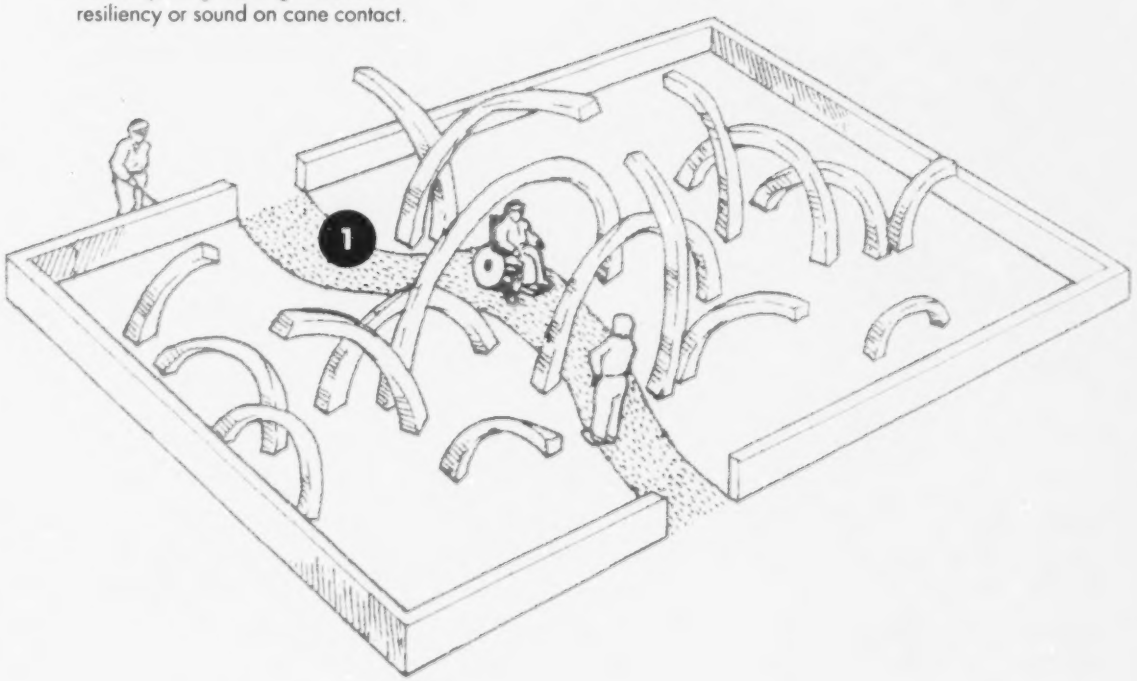
For such elaborate sculptures, it might be possible to install an audio-information system to alert visitors. An infrared system like Talking Sign®, currently being tested in San Francisco Bay Area Rapid Transit stations, might be used. Audio loops might work well in such situations; see page 123. Visitors with a vision disability are loaned a receiver that picks up prerecorded messages transmitted when they approach a particular location.

Regardless of the method used to protect visitors from injury, a comprehensive, museum-wide system should be developed so that sculptures are installed in a consistent manner. This way, when visitors with a vision disability encounter a particular material change underfoot, they understand that it means that they are approaching a potential hazard. When entering the museum, such visitors should be made aware of the system and be given any needed assistance.

Museums should make an effort to convey the content of sculptures, like other exhibits, to all visitors. Models for tactile examination can be very effective, especially when they are accompanied by an audio tape that describes physical characteristics not perceivable through touch.

Entering Sculptural Environments

1. High-contrast detectable surface that differs from adjoining walking surface in resiliency or sound on cane contact.



F. Lighting and Color for Exhibits and Gallery Spaces

An important part of any display, lighting affects both a visitor's perception of and interaction with the exhibit. Adequate and appropriate lighting, combined with careful use of color and pattern on floors, walls, and furniture, can enable all visitors, including people with low vision, to maneuver safely within a museum, experience objects on display, and read labels. At the same time, designers should protect light-sensitive objects. This section provides some recommendations to help meet these challenges.

The topic of lighting is not addressed directly in the ADA Standards, with the exception of suggestions for how much illumination should be directed at building signage (provided in the appendix to the ADA Standards).

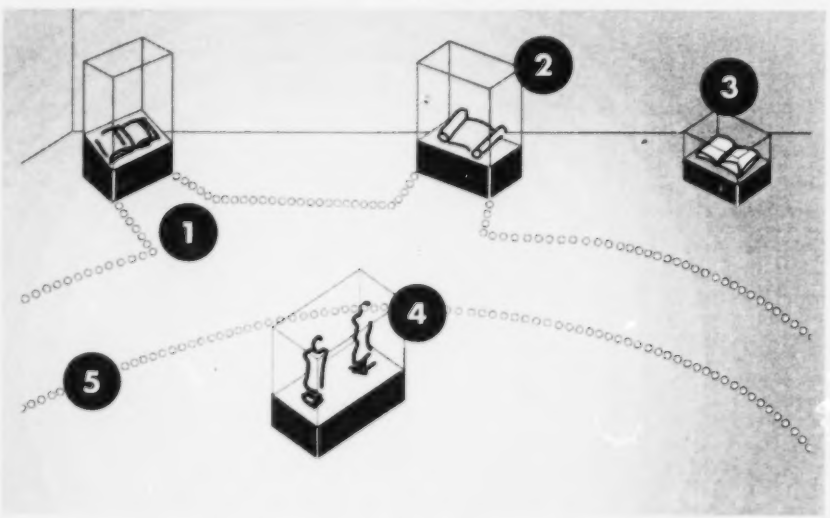
Gallery and Exhibit Lighting

In most situations, the museum should supply a minimum level of general illumination throughout the facility. The minimum light level at which someone with a vision disability can see an object is 10 foot-candles. It is especially important to provide this 10 foot-candle minimum on circulation paths, even when the path is equipped with good color contrast and has no obstacles.

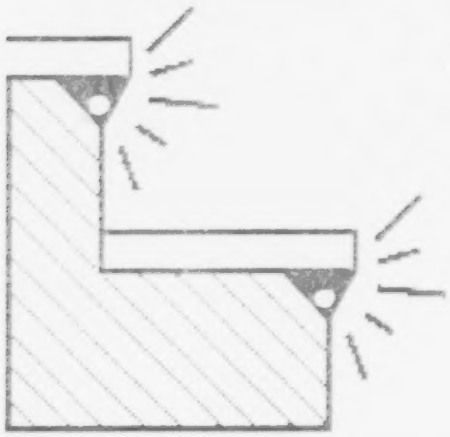
It is important to avoid casting shadows on objects and labels through the

Lowlit Guide Paths, Timed and Activated by Visitors When Needed

1. Branch path.
2. Objects along lighted path
3. Guide paths may go to all exhibits or only to some, leaving others "dark" except for their own built-in lights.
4. Objects located off path might have their own built-in lights and be large enough to be viewed while remaining on the path.
5. Path lights like this may be optimal but other options such as low voltage yard lights installed on the bottoms of cases may be feasible for smaller museums.



Recessed Lighting on Stair Nosings Provides Visual Cues



placement of localized or spot lighting. Shadows can make viewing difficult or impossible for some visitors with low vision.

Eliminate as much glare as possible so that all visitors, including wheelchair users and people of short stature, can look into a case and not have their view obscured by glare or poorly placed accent and spot lighting. Clear plastic with a nonglare surface finish works well only when pressed tightly against flat art.

Lighting should be used judiciously. For example, flashing and flickering light can disorient visitors whose vision cannot adjust quickly and can trigger seizures in some people who are photo sensitive. Spotlights cast deep shadows or create pools of light on a flat walking surface, giving a false impression that the area is not level. Designers should remember that dark colors and shadows are perceived as sunken areas; light colors and pools of light are perceived as raised areas; and glare and sheen are perceived as wet areas. When using special-effect lighting, consider installing view barriers to control the lighting effect.

Visually Quiet Areas. For people using sign language or speech reading, it is important to provide even lighting of at least 10 foot-candles in selected "visually quiet" areas within an exhibit. Busy backgrounds force visitors who rely on reading sign language to sort out sign movements from surrounding distractions. This can quickly tire the reader and make sign-language tours and conversations exhausting.

Outdoor Exhibits

In outdoor displays, glare, reflection, and shadowing can significantly influence the visibility of an exhibit. Depending on the season and time of day, these factors are subject to dramatic change. Exhibits located under an awning or shelter offer a more controlled environment, but may need to be artificially lit. When naturally lit and unshielded, exhibits set against white or light-colored backgrounds are generally less effective because of possible glare from the sun. Dark backgrounds are recommended with light-colored text.

Low-Light Situations

Some exhibit spaces and collections, such as a planetarium, a fragile manuscript, or a nocturnal zoo exhibit, pose unique lighting challenges. They may require as little as 5 foot-candles or less light intensity. Museums must balance consideration for people with vision disabilities and the conservation of objects.

Because dark walls and floors absorb light, gallery colors should be light when conservation concerns require low lighting. Light colors better reflect ambient light and can counteract some of the effects of low light, making it possible to

see the circulation route, objects, and labels.

To assist the visitor in navigating through a low-lighted environment, at the very least, have baseboards and pedestal bases contrast with the surrounding area. In addition, the use of floor, wall, or baseboard lighting can indicate the circulation path and provide additional orientation cues. In areas that must remain dark, recessed low level continuous path lights can define a safe path through exhibits and transitional spaces.

Sharp color contrast of handrails or the addition of rail lighting indicates the presence of plexiglass waist-high barriers so that people don't think they are walking toward an exhibit and crash into the barrier. Level changes including ramps should be well lighted to prevent falls. Steps and stairs should have contrasting treads and risers to make them more visible. Reflective phosphorous strips might also be applied.

A museum can improve the visibility of low-lit areas by positioning objects for close approach (up to 3 inches) and using a high-contrast background behind objects. An alternative is to represent these objects in photographs in a brighter location or offer audio description and/or tactile models of selected pieces.

In darkened environments, light type on a dark background is preferable. Backlit text is very difficult to read, especially for people with vision disabilities.

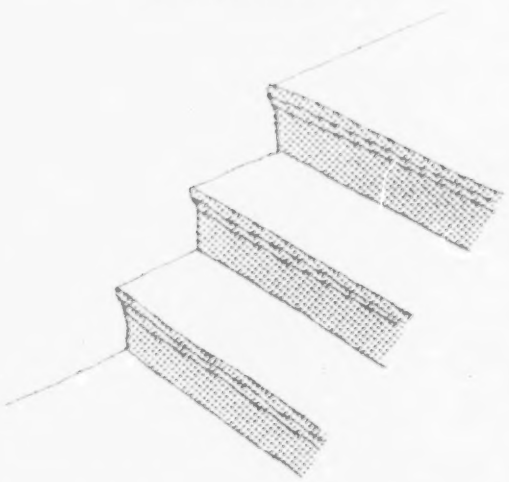
Transition Areas

Transition areas should be provided between low-lit exhibit spaces and brightly lit galleries. These areas should be lit so that visitors do not have to stop and "get their bearings" visually before moving to the next room or space. Modulating light levels up or down should be gradual because the eye needs time to adjust to highly contrasting light levels. Dramatic shifts may be disorienting for visitors, especially for older people and those with visual impairments whose eyes generally adjust more slowly.

Color and Pattern

Careful use of color and pattern helps to create an environment that is clearly articulated and provides useful visual cues about the depth, height, shape, and location of exhibit objects as well as environmental spaces and features. Objects on display should be visually distinguishable from their background. The base of their display cases should be visually separate from the floor. People with visual impairments need at least a 70 percent contrast in color value to differentiate between

Stairs with Sharply Contrasting Treads and Risers



surfaces or objects. (The 70 percent is supported by both the ADA Standards and the *Smithsonian Guidelines for Accessible Exhibition Design.*)

Furniture should also be visually separated from the walls and floor. For example, benches upholstered in a similar color or pattern as the floor, when seen from above, blend with the floor and become tripping hazards. The juncture of floor and wall should be denoted by color contrast, at a minimum, with baseboards that contrast with the floor.

Walls and floors should contrast with each other. Similar color value used on walls and floors can cause a visually impaired person to perceive a room or corridor as a bowl. The lack of contrast results in difficulty identifying where walls and floors meet.

Light, neutral tones, such as beige or gray, are good choices against which to display dark objects, as are darker neutral shades for lighter objects. These neutral choices may be more effective than white or black, which, though dramatic, can wash out detail altogether as the eye adjusts to the stark contrast.

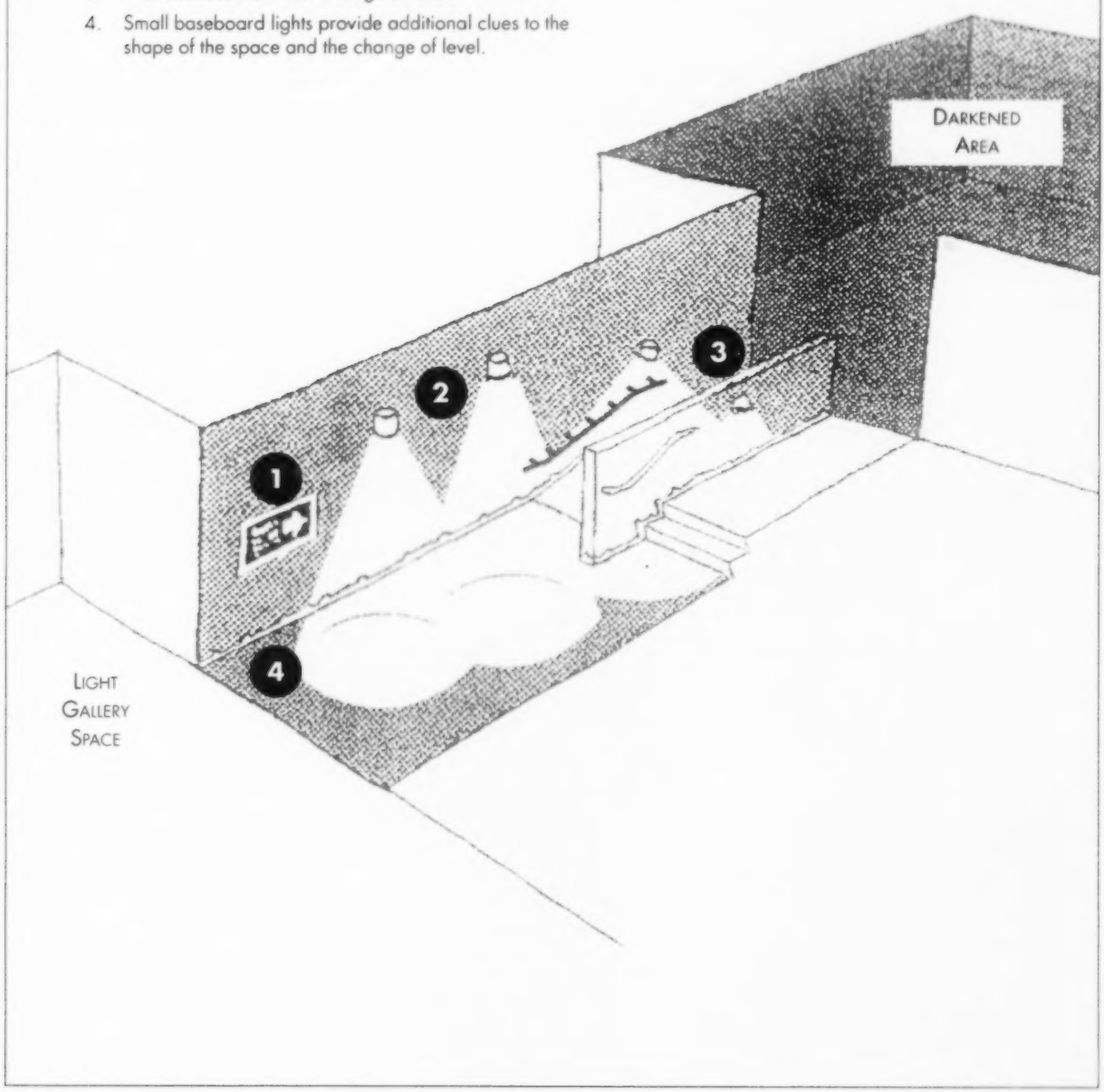
Patterns

It is important to avoid repeating a single color or pattern throughout the exhibit or gallery, on display case bases, and on furniture. Highly patterned materials may confuse visitors with visual impairments about the distances between adjacent surfaces. Where patterned floors currently exist, it may be necessary to increase the level and evenness of lighting, so that people can identify the floor colors as a design rather than as changes in floor levels.

Other light, color, and contrast effects to avoid include: 1) spot lighting in a room with glossy wall paint or nonaccessible reflective signage, which can increase glare and reflection; and 2) geometric patterns, which can disguise changes in level or uneven surfaces. Both conditions can tire the eyes, induce fatigue, and even cause headaches for visitors who spend much time in the exhibit.

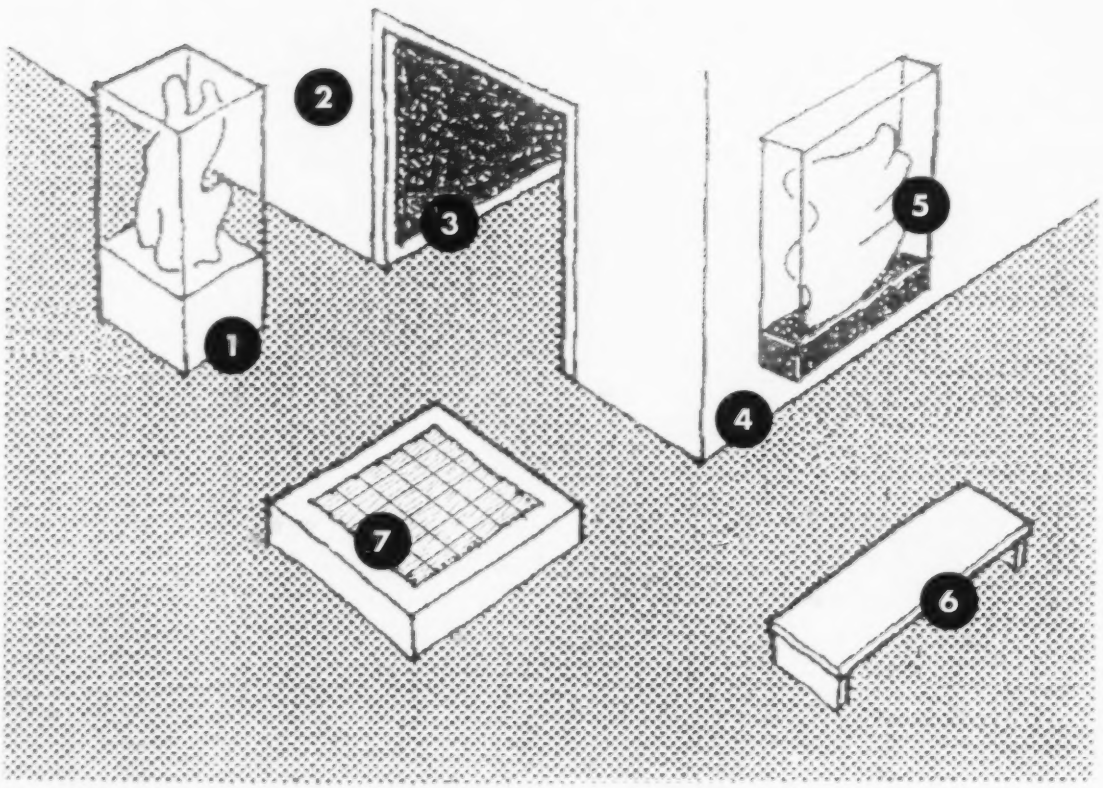
Transition Area Between Light and Dark Spaces

1. Signs with light characters on a dark background sized to match the specification in the ADA Standards.
2. Down lights illuminate the path to the ramp and stair.
3. Wall sconces illuminate change of level.
4. Small baseboard lights provide additional clues to the shape of the space and the change of level.



Good Contrast Between Floor, Walls, and Objects on Display

1. Case to floor contrast.
2. Wall to trim contrast.
3. Baseboard to wall and floor contrast.
4. Floor to wall contrast.
5. Case to wall contrast.
6. Bench to floor contrast.
7. Case to object contrast.



Chapter 4—Content Communication

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Chapter 4—Content Communication

I. Overview

First and foremost, a visitor should be able to safely and successfully find, enter, and move through the museum site, building, restaurant, gift shop, and all other public facilities and amenities. But equally important to ensure a successful museum experience is communication of information about the museum's exhibits, collections, and public programs.

All museum exhibitions strive to facilitate an educational encounter between the visitor and the presentation. Museums now recognize that people learn and relate to the world around them in different ways—some are readers; others prefer to listen or need to touch; many prefer a combination of all three to get the most out of the information.

When planning exhibits, museums should not rely only on one method to communicate information about an object. People should be given choices for how they access the content of an exhibition. By combining audio, visual, and tactile opportunities, museums allow individuals to choose the means that best fit their ability, learning style, or educational background. This is especially important for people with disabilities—a person with a vision impairment may not be able to access information presented exclusively in print but may learn a great deal from a taped audio description.

Only slight modifications of existing modes of presentation can provide accessibility. For example, an audio-taped tour can be supplemented with a large-print script that any visitor may decide to use. This may be especially important on outdoor tours where audio tapes are more difficult to hear. Video tapes should have captioning. The museum should provide assistive listening systems and sign-language interpreters where necessary to provide effective communications. Museum brochures produced in large print can benefit all sighted users. Likewise, raising the level of ambient lighting in exhibitions may benefit most visitors. This must be weighed against possible adverse effects to sensitive artifacts or nocturnal living collections. That is not to say that all exhibits must make every feature available in audio, visual, and tactile or Braille formats; however, communication of the main themes of an exhibit and essential information about the museum should engage these three senses.

> "In recognizing the diversity of our public, our institutions then are charged to design their services so that they provide opportunities for learning and enjoyment for all people, regardless of ability or disability, age, educational background, or preferred learning style, without singling out or separating anyone."
>
> Janice Majewski
> Smithsonian Accessibility Coordinator

When they skillfully modify a tour to fit the specific needs of visitors, well-trained docents can bridge the gap between visitors with a disability and an exhibit. For example, they can describe or reach into a drawer and pull out a pass-around, touchable object, work with a sign-language interpreter, modify the length of a tour to fit the needs of people with either short attention spans or stamina problems, and thoughtfully select words to suit an individual's interest or cognitive level. As museums and their displays become more accessible, docents increasingly fill the role of content expert, bringing valuable human contact and interaction into a specific exhibit context.

Exhibit design that addresses the fact that museum visitors come from diverse backgrounds, often including disabilities, broadens the museum experience for all visitors.

II. Communicating Content

The real challenge of exhibit design is to find the most effective means of communicating an exhibit's content to visitors. What complicates matters is the fact that people perceive and process information in different ways. Because communication is so important, the ADA requires that museums ensure effective communication to people with disabilities. (See Chapter 1, page 13.)

The ADA allows the museum to determine the means used to communicate an exhibit's content, with the stipulation that the chosen method must be appropriate for the information's level of complexity. A pencil and a pad of paper may be appropriate for a one-on-one conversation between a deaf visitor and a ticket seller, but a live lecture on prehistoric ruins might require a sign-language interpreter. By understanding not only the exhibit's content but also the abilities of people

Making All Guests Feel Welcome

The following is a list of steps museums can take to make visitors with disabilities feel welcome and at ease. These may be required as part of your system of providing effective communication:

Orientation brochures and guide maps that identify accessible features with the international symbol of accessibility.

Orientation and information brochures in large type so that all users may use the same brochure.

An advertised incoming TTY (text telephone) line so visitors with hearing or speech impairments can contact the museum.

Sign-language interpreted tours for visitors with hearing disabilities.

Captioned orientation videos.

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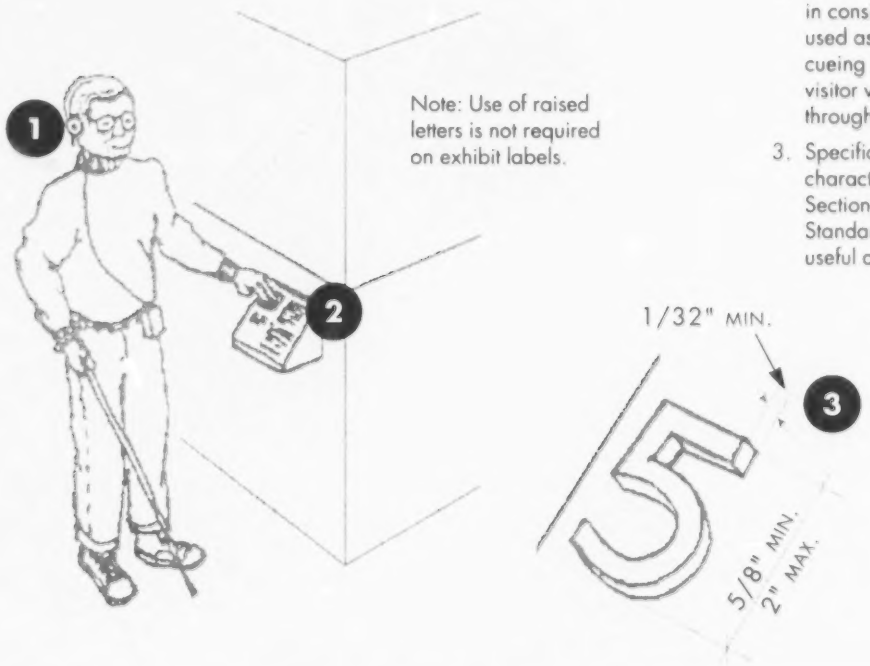
with sensory limitations, designers can present information in ways that are easier for everyone to grasp. An exhibit may have audio descriptions of photographs, paintings, or sculpture as well as print materials with large type for people who cannot read the small print on the labels.

Because most information is presented by sight or sound, three groups of people with disabilities are most at risk of being unable to obtain information. They are people with visual, hearing, and cognitive disabilities. Pieces of communication that are understandable by these people will be easier for everyone to understand. For example, type fonts that people with low vision find easy to read are also easily read by the general public. Open captions on video programs for deaf or hard-of-hearing visitors help everyone in a crowded or noisy environment. A brochure designed with people with cognitive impairments in mind is easier for everyone to read and understand.

Creative museums are developing various forms of communication that approach universal design and end up being easier, faster, and more enjoyable for all visitors. Even small museums can provide effective communication through such simple measures as having someone read a standard printed brochure to a visitor with low vision. This section provides a number of options to satisfy the intent of the ADA requirement to provide effective communication.

Exhibit Labels



1. Visitor is wearing a headset attached to a self-guided audio tour cassette.
2. Tactile characters positioned in consistent locations can be used as part of a successful cueing system to guide a visitor with a vision disability through an exhibit.
3. Specifications for tactile characters are given in Section 4.30 of the ADA Standards. These may be useful as a guide.

III. Label Design

Labels on exhibits often provide essential information. To be usable by most people, labels should be high contrast and low glare. While the ADA requires Braille and tactile lettering on certain permanent room signs, neither is required for labels. One method of providing information might be to assign a tactile number to each display following a logical sequence. These tactile reference numbers mounted in a consistent location can become the cue that guides a visitor through the exhibit while listening to a prepared audio tape. If this tactile label is also visual, it could serve as a cue for any visitor using an audiotape tour. This is especially useful for visitors with visual impairments.

Another type of label that is becoming increasingly popular is the audio label. It should be accompanied by a label that can be read easily so that visitors with little or no hearing can participate.

A print label may be a single card that identifies a specific object or a lengthy case label. Labels may be mounted on walls or railings, on the floor, in wells, be free standing, or serve as instructions for interactive exhibits. Vertical text panels may be silk-screened onto a wall, suspended overhead, or even mounted on an A-framed sandwich board. This section describes some general principles on how to create more universally usable labels. It discusses content presentation, type selection, mounting height and angle, intended viewing distance, and lighting.

Content

It is important that essential label information be accessible to people who have difficulty reading, children, and non-English speaking visitors. The following are suggestions on creating labels with content that can be understood by most visitors:

Use clear, nontechnical English in the active voice. Technical jargon, when necessary, should be explained using commonplace idioms and language.

To ensure visitors can follow a lengthy description, carefully link sentences and paragraphs within each label, limiting sentences to 25 words and labels to 100 words maximum. Each sentence should express one thought only.

If possible, provide a short overview statement at the beginning of longer text panels. Some visitors tire from having to read a large volume of text.

Format instructional text either in a bulleted or numbered list, limited to three or four items.

Format information text in short paragraphs, allowing at least one line space between each paragraph.

For an instructional label, use a line drawing, silhouette, or photograph to identify parts of the object or to indicate how to operate a control, especially for processes that are difficult to describe in a few, simple words.

Type Characteristics

Typeface or font, size, and leading are key typographical elements that can easily be varied to produce more legible labels. Character proportion, letter spacing, and text margins all contribute to effective labels. For a specific criteria that may act as a guide, refer to Section 4.30 of the ADA Standards and to *Standards Manual for Signs and Labels* published by AAM and the Metropolitan Museum of Art. (See Resources.)

a d

Care must be taken in the selection of a typeface so that one letter cannot be mistaken for another.

Typeface. Museums should use a typeface that is simple serif or sans serif for most of its printed material. Helvetica, New Century Schoolbook, or Times Roman are among the most legible. Script, condensed, and italic type should be reserved for nonessential information such as donor citations.

Labels and text-panel copy should be set in upper– and lower–case type. Type set in all caps is difficult to read and should be limited to titles and headlines.

(Note: Raised letters intended to be read by touch, however, are easier to understand if they are formed exclusively of capitals.)

Character Proportion. Do not use very condensed, extended, or extremely bold or light type faces.

Examples of Text Fonts

	YES	NO
1	**Sans Serif**	**Unusual Fonts**
	Helvetica /Arial	*script type*
	Univers	
	Futura	**condensed type**
2	**Simple Serif**	**extended type**
	New Century Schoolbook	light type
	Times Roman	
	Palatino	*ornate italic type*

1. A sans serif type face is without, or "sans," the little accents at the ends of each character.
2. The serif is the accent or finishing stroke projecting from the end of a character.

Type Size. Visitors with visual impairments need larger type at every distance. As the viewer's distance or angle of perspective from a wall panel or label increases, so should the size of the type.

Leading. Leading, or the distance between the base of one line of text and the base of the next, affects overall readability. A good rule of thumb is that the line spacing should be about 20 percent larger than the type size. For example, if the type size is 14 points, the leading should be about 17 points.

Text Justification. Type that is left justified with a ragged right margin offers greatest legibility.

Letter Spacing or Kerning. Space around a letter can be as important as the letter itself. Too much or too little letter spacing drastically affects the legibility of type.

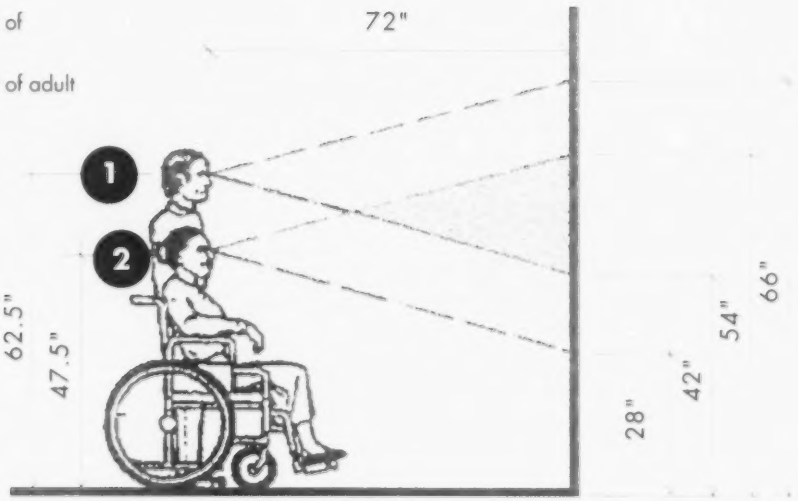
Contrast

Type must exhibit a high degree of contrast from its background. The ADA Standards recommend characters contrast with the background by at least 70 percent, meaning text should be at least 70 percent darker or lighter than its background. Avoid, for example, combinations of white and light gray. Studies have shown that white type on a black background is slightly more legible than black type on a white background in dimly lighted spaces. But the type size in this circumstance should be at least 18 points or larger. Letter spacing may be increased so that letters do not bleed into each other and legibility is maintained.

For large type such as headlines, dark type on a light background works marginally better than light on dark. For light backgrounds, off-white is preferable to pure white. As a rule, backgrounds should be solid, nonglossy colors. Separate label

Comfortable Viewing Zone for Standing and Seated Visitors

1. 62.5" average eye level of standing adult.
2. 47.5" average eye level of adult seated in a wheelchair.



backgrounds from the wall or base by using changes in color or shade so that viewers can more readily locate labels.

Background Material. Use a medium with a matte or other nonglare finish for both the background and the text. Labels and signs made of metal, for instance, typically cause glare and reflection.

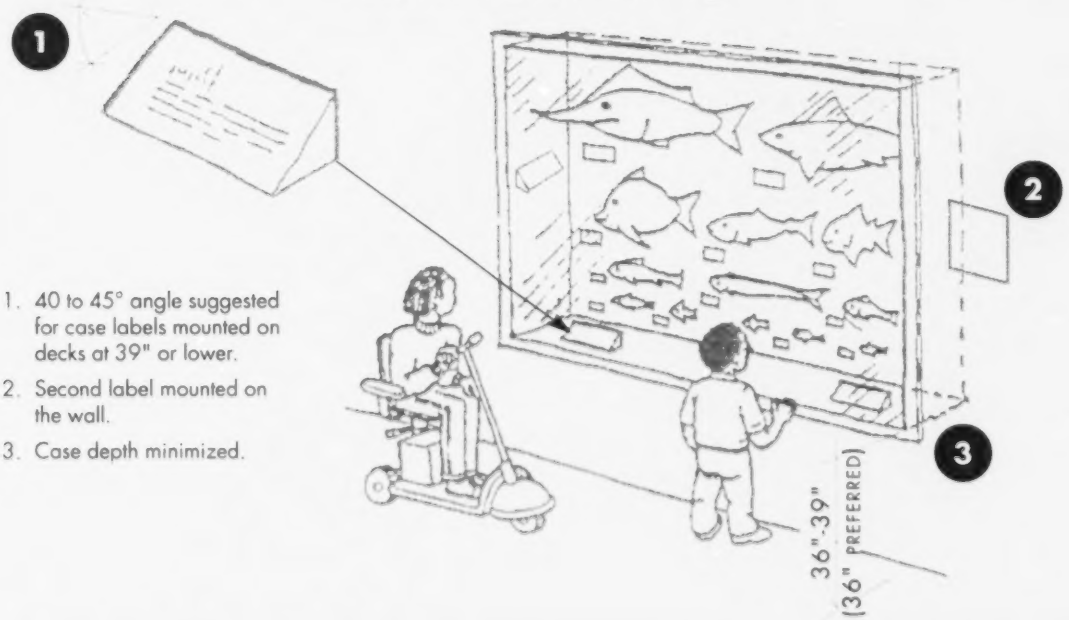
Do not print text over images or busy graphics. Doing so creates illegible type for visitors with vision or perceptual difficulties. Avoid silk-screening directly onto a clear plexiglass or glass case or panel because letter contrast is reduced, and text is obscured by distracting "see-through" images. When an opaque, contrasting color is applied to the plexiglass before the characters are superimposed, readability can be greatly improved. However, plexiglass placed under spot lighting can cause a great deal of glare.

Label Position

Mounting positions differ depending on the kind of label to be installed. People with visual impairments should be able to position themselves within 3 inches of the label. This may not be possible for much of the type on text panels. Thus, the type size on the panel should be increased to be readable, the information might be presented in an audible form, reproduced in a brochure with enlarged type, or provided in other formats accessible to people with low or no vision.

Labels should never be placed flat on the floor of display cases. If labels must be placed in cases, angle them so that a person who is seated, of short stature, or standing will be able to see and read the label, which otherwise might be missed if mounted flat on a surface that is too high.

Labels Positioned at an Angle to Facilitate Easy Reading by All Visitors



1. 40 to 45° angle suggested for case labels mounted on decks at 39" or lower.
2. Second label mounted on the wall.
3. Case depth minimized.

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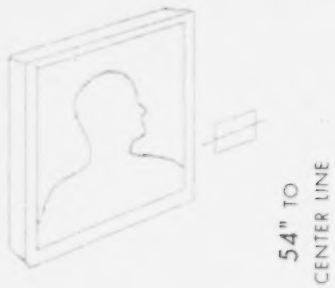
Optimum Mounting Height for Wall Labels



Wherever possible, move or place labels toward the front of the display case and in consistent locations throughout an exhibit.

Wall Labels. Some people with disabilities have limited movement of their heads or have reduced peripheral vision. Even some people who wear glasses experience distortion when they look through variable-view lenses or are forced to make head adjustments as they attempt to see around their eyeglass frames. This workbook uses a 30-degree cone of vision as an acceptable viewing range (no head movement is expected of the viewer) that accommodates visitors who stand as well as those who may use a wheelchair.

The comfortable viewing zone is between 42 inches and 66 inches above the floor when the viewer is 72 inches from the object or label. The center of this zone is 54 inches above the floor. As the viewer gets closer to the label, even as close as 3 inches, the bottom of the zone raises to 48 inches. For viewing distances from 3 to 72 inches, an optimum height for mounting labels flat against the wall is 54 inches from the floor to the label's center line.

Case Labels. Angle labels 40 to 45 degrees, and place them as close to the front of the case as possible. Labels placed flat on the case deck are impossible for people with vision disabilities to get close enough to see and also are very difficult for people who use wheelchairs to look down onto. As discussed earlier in this chapter, to be accessible, the floor or deck of a display case should be 33-40 inches from the floor. To be readable, angled labels that sit on the deck of the display case should be placed on a surface no higher than 40 inches. Labels mounted above 40 inches should be flat against the vertical plane of the base, the back wall (difficult for people with low vision), or on the vitrine itself—if it does not obstruct the view for a person seated in a wheelchair.

Rail Labels. Rail labels should be mounted so that the top of the label is approximately 40 inches above the floor. This enables seated as well as standing visitors with vision disabilities to read with ease.

Floor Labels. Typical floor labels and label wells are difficult for visitors who have low vision or use a wheelchair. They can be equally difficult for visitors with balance problems because of the need to bend and stoop to get close enough to read the label. Floor labels can be used if the type is sufficiently large to be read from a standing position and if the label is mounted no lower than 12 inches from the floor at a 40-45 degree angle. Another alternative is to mount a second label nearby that is keyed to the display and is easy to locate and read.

Labels for Controls in Interactive Exhibits. Control labels should be incorporated into the design of the control or placed immediately adjacent with tactile characters included as often as possible. Tactile characters should be raised 1/32-inch, upper-case, sans-serif or simple-serif type, and be between 5/8 inch and 2 inches high. Text should be simple and rely on symbolic representations, such as "press" on push buttons. See also the Controls section in Interactive Exhibits, page 94.

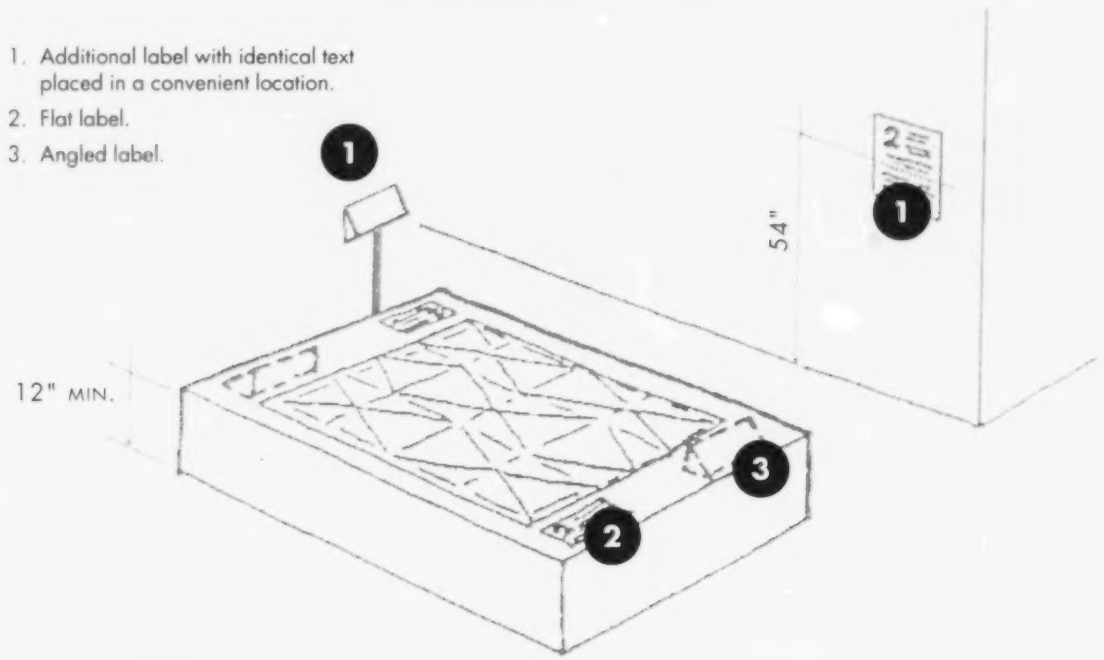
Lighting for Labels

Lighting should be installed so that labels are evenly lit, taking care that no part of the label is in shadow. Label lighting should be at the same light level as in the area immediately surrounding the label.

The appendix to the ADA Standards suggests an illumination level of between 10 and 30 foot-candles for building signs. This specification is equally applicable for lighting labels to make them readable by visitors with visual impairments.

Location of Additional Labels

1. Additional label with identical text placed in a convenient location.
2. Flat label.
3. Angled label.



IV. Describing Visual Information

Visiting a museum is largely a visual experience. The colors of the golden lion tamarin at the zoo or the details of the crown molding in a historic dining room are those elements that make a trip to see the actual thing worth while, it's why we go to the museum rather than watch a video or read about an exhibit on-line or in a book.

One way to dramatically improve the enjoyment of an exhibit by visitors with no or low vision is to provide an audio description of an exhibit or the action of a performance. Because the amount of detail the human eye can examine is considerable, audio descriptions must capture the essence of a scene and provide detailed information in brief, clear statements. For static exhibitions, an audio tape or other device may be appropriate. In the case of live performances or for temporary events, however, it may be better for a trained docent to provide live descriptions for people who are blind or have low vision. This permits people to query the information source, one of the primary functions of a docent.

Other examples of audio communication approaches include:

docent scripts enhanced with descriptive phrases;

pre-recorded audio-tape descriptions of an exhibit made available on headsets;

self-guided, portable audio-tape players with different versions of the same tour recorded on two sides: one with basic information and the other containing additional audio description for the visitor with a vision impairment or who has more time or desires more detailed information;

an audio file integrated into a multimedia computerized interactive exhibit;

infrared or radio-frequency audio-information systems broadcasting pre-recorded information from an exhibit that can be heard through small hand-held receivers issued to visitors; and

multichannel assistive-listening systems used at live performances to provide audio description as well as amplification.

V. Conveying Audible Information

Individuals who are deaf or are hard of hearing need to obtain information in a way that does not depend only on sound. The methods used to provide effective communication will vary based on the complexity of the information and other factors (See Chapter 1, page 13.) In many simple transactions, answers to questions can be provided using written information, such as answers to inquiries about admission fees or directions when filling out membership applications. Communications provided through simple methods such as written notes will be as effective as the communications provided to other individuals in similar transactions. Other transactions however, involve more complex or extensive communications than can be provided through such simple methods. When communicating with a person who is deaf or hard of hearing, sign language or oral interpreters, for example, may be required when the information being communicated is complex, or is exchanged for a lengthy period of time.

Factors to be considered in determining whether an interpreter is required include the context in which the communication is taking place, the number of people involved, and the importance of the communication.

★ ■ **Whether the communication is simple or complex, auxiliary aids and services are required when necessary to provide effective communications. For people who are deaf or hard of hearing, auxiliary aids and services include: written materials, telephone handset amplifiers, assistive listening systems, telephones compatible with hearing aids, closed caption decoders, open and closed captioning, telecommunications devices for deaf persons (TDDs), videotext displays, exchange of written notes, qualified interpreters, note takers, and computer-aided transcription services.**

VI. Captioning

People who are deaf or hard of hearing may have difficulty following the dialogue in video and live performances. Video productions and performing arts facilities have developed several captioning methods that during the performance translate the spoken word into simultaneously displayed text.

Open captioning is a common method to display the spoken portion of video programs. With this method, captions always appear on the screen. This universal solution helps everyone. The challenge is to reduce visual overload and find an appropriate place and format for the text to be displayed on the screen. Unless captioning is planned from the outset, portions of the screen may be obstructed by captions at the bottom. When developing a video, one

Who Is a Qualified Interpreter?

There are a number of sign language systems in use by persons who use sign language. (The most common systems of sign language are American Sign Language and signed English.) Individuals who use a particular system may not communicate effectively through an interpreter who uses another system. When an interpreter is required, a museum should provide a qualified interpreter, that is, an interpreter who is able to sign to the individual who is deaf what is being said by the hearing person and who can voice to the hearing person what is being signed by the individual who is deaf. A certified sign language interpreter is not necessarily required for effective communication. The key question in determining whether communication will be effective is whether the interpreter is "qualified," not whether he or she has been actually certified by an official licensing body. A qualified interpreter is one "who is able to interpret effectively, accurately and impartially, both receptively and expressively, using any necessary specialized vocabulary." An individual does not have to be certified in order to meet this standard. A certified interpreter may not meet this standard in all situations, e.g., where the interpreter is not familiar with the specialized vocabulary involved in the communication at issue.

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should consider the placement of the captions, whether at the bottom, the top, or in a separate frame.

Closed captioning, another common method for displaying dialogue visually, requires a special decoder or a television with a decoder chip built in to display the image. This allows the captioning to be turned on or off, depending on the audience. Most televisions sold since 1992 have a built-in decoder chip.

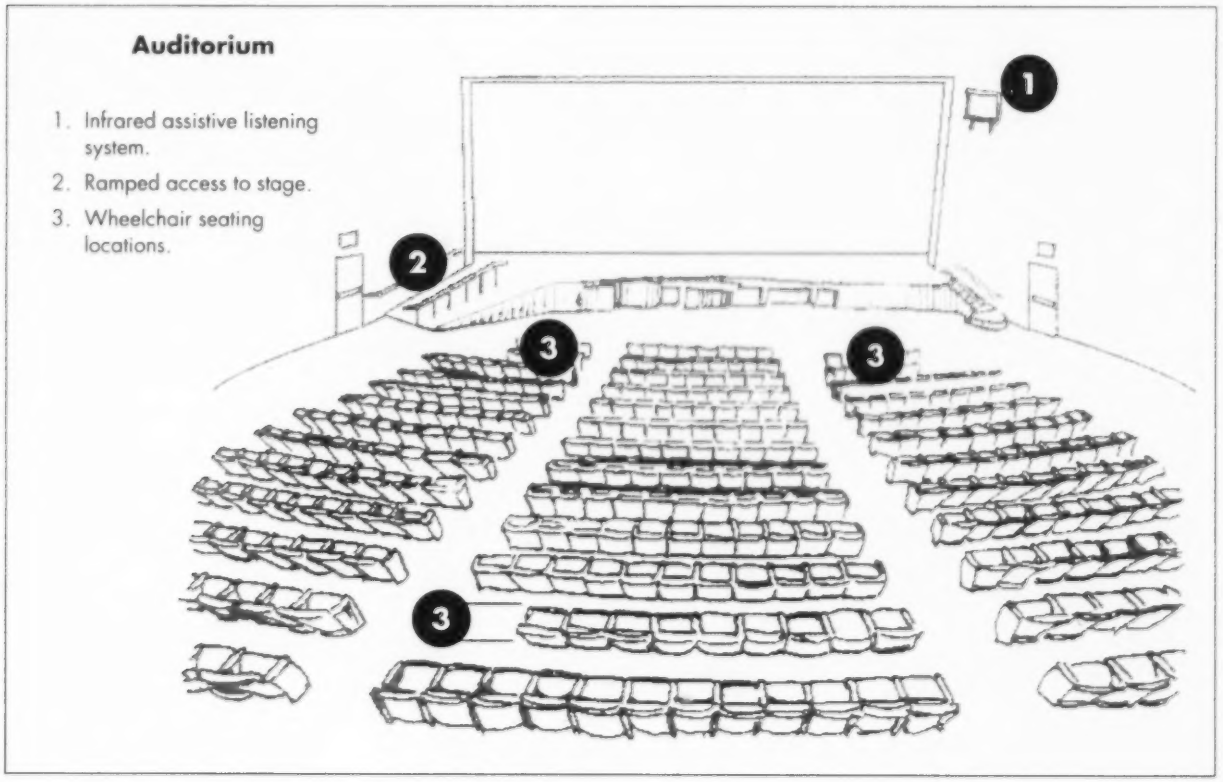
The recent development of several innovative captioning systems for theaters and auditoriums provides captions to movies or plays without the visual distraction of text running across a screen. The Rear View® display system projects captions in reverse on the rear wall of an auditorium. People who wish to view them have a small arm rest-mounted mirror to read the captions.

In another system, small LED or CRT displays mounted on the arm rest of the seat, or larger LED displays on the projection wall, provide a synchronized, computer-generated text display of the dialogue. The arm rest-mounted units minimize distraction to the audience.

A third system projects polarized-light captioning at the bottom of a movie screen while viewers wear polarized glasses. This system has been used in planetariums, as well as IMAX and 360° theaters where other systems may not be appropriate. Viewers without polarized lenses see only a light green area at the bottom of the screen.

VII. Other Media

As the abilities of visitors with sensory impairments become better understood,



museums can use old and new media to provide effective communication.

Special ground or floor surfaces

Special ground or floor surfaces that are easily detected by a long cane or through the sole of a shoe can be effective indicators of special features, such as the location of tactile exhibits. These surfaces should have a different texture, resiliency, and color than the surrounding area. The system should be obvious, explained in promotional literature (especially in alternative formats for visitors who are blind or have low vision), and must be used consistently throughout the museum.

Audible signs

Audible signage is a new technology that is gaining wide acceptance as an interpretive medium in transportation facilities. In San Francisco, the Bay Area Rapid Transit (BART) has been experimenting with Talking Signs® in conjunction with standard signage. Tiny infrared transmitters located adjacent to signs and fare machines send out an invisible signal that can be translated into audible information by a small hand-held receiver. The receiver is directional, so that the listener can find and approach the sign by scanning the environment and moving toward the stronger signal. This system is truly universal in that it can have multiple channels simultaneously assisting visitors in English and other languages.

Large Print

People with low vision may have difficulty reading small print and may require larger print materials. Large print is easy to produce. An 8 1/2-by-11-inch page enlarged 150 percent to 14 by 17 inches enlarges standard 12–point type to larger than 18–point type. Careful layout of a brochure into rectangles that can easily be enlarged to fit standard page sizes can be a cost-effective way to provide large print. A box that is approximately 4 inches by 5 inches can be enlarged 200 percent to fit on an 8 1/2-by-11-inch page.

Photographs and Video

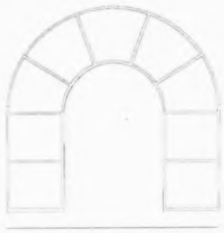
Large photographs, close-up photography, or videos that a visitor can view at a close distance are relatively low-cost methods of providing information for a person with low vision. These methods also might be considered for displaying the contents of a space that is inaccessible to visitors who cannot climb the stairs leading, for example, to the upstairs bedroom of a historic house or to the engine room of a ship.

Virtual Reality

Although experimental, virtual-reality programs may provide alternative ways to experience environments and concepts that are not fully accessible to everyone. Imagine learning about computers by becoming the size of an electron and moving through the chips and circuits of a personal computer.

VIII. Conclusion

Effective communication is a key museums can use to unlock our cultural heritage and make the wonder of the world accessible to all.



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Resources

Materials are listed following the organization from which they are available.

I. Government Resources

Note: Generally, all publications available from federal agencies are free.

A. Department of Justice

U.S. Department of Justice Disability Rights Section, Civil Rights Division
P.O. Box 66738, Washington, DC 20035-6738

The U.S. Department of Justice answers questions about the Americans with Disabilities Act (ADA) and provides free publications by mail and fax through its ADA Information Line.

ADA Information Line

(800) 514-0301 Voice, (800) 514-0383 TTY

For general ADA information and answers to technical questions, call the ADA Information Line on Monday, Tuesday, Wednesday and Friday from 10:00 a.m. until 6:00 p.m. or on Thursday from 1:00 p.m. until 6:00 p.m. (Eastern Time).

Publications by Mail

Publications are available in standard print as well as large print, audiotape, Braille, or computer disk for people with disabilities. Call the ADA Information Line 24-hours a day to order through the automated system.

Publications by Fax

Many publications can be ordered through an automated fax system. To order, call the ADA Information Line 24-hours a day and request the publications list which has numbers for ordering by fax.

Publications by Internet or Bulletin Board
Most publications are available on the Department's ADA Home Page at http://www.usdoj.gov/crt/ada/adahom1.htm. In addition, documents may be obtained electronically through the Department's ADA Bulletin Board System (ADA-BBS) at (202) 514-6193.

ADA Regulation for Title II, as printed in the Federal Register (7/26/91)

ADA Regulation for Title III, as printed in the Code of Federal Regulations (7/1/94)

Enforcing the ADA: A Status Report from the Department of Justice
An quarterly report providing timely information about ADA cases and settlements.

A Guide to Disability Rights Laws
A 14-page booklet providing a brief description Federal disability rights laws.

Learn About the ADA in Your Local Library
A 10-page annotated list of 95 ADA publications and one videotape that are available in 15,000 public libraries throughout the country.

Commonly Asked Questions About Service Animals in Places of Business
A 3-page publication providing information about service animals and ADA requirements.

Title II Technical Assistance Manual (1993) and Supplements
A 30-page manual explaining what state and local governments must do to ensure that their services, programs, and activities are provided to the public in a non-discriminatory manner. Gives practical examples.

Title III Technical Assistance Manual (1993) and Supplements
An 83-page manual explaining what businesses and nonprofit service agencies must do to ensure access to their goods, services, and facilities. Gives practical examples.

ADA Guide for Small Businesses
A 15-page booklet for businesses that provide goods and services to the public. This publication explains basic ADA requirements, illustrates ways to make facilities accessible, and provides information about tax credits and deductions.

ADA-TA: A Technical Assistance Update from the Department of Justice
A serial publication that answers "Common Questions" about ADA requirements and provides "Design Details" illustrating particular design requirements. The first edition addresses "Readily Achievable Barrier Removal" and "Van Accessible Parking Spaces."

ADA Design Guide 1 — Restriping Parking Lots
A 2-page illustrated design guide explaining the number of accessible parking spaces that are required and the restriping requirements for accessible parking spaces.

ADA Library Information File

The DOJ has sent an ADA Information File containing 95 technical assistance documents to 15,000 libraries across the country. Most libraries have placed the file at the reference desk. All the materials referenced in the text of this guide can be found in this file. In addition to the text of Public Law 101-336 (the ADA), the final rule implementing Title II and Title III regulations, the *Technical Assistance Manual for Titles I, II, and III*, and *ADA Questions and Answers*, the file contains these and other special-interest documents:

ADA Answers for Food Service Operators–A 48-page guide developed under a DOJ grant by the National Restaurant Association and the National Center for Access Unlimited that provides an overview of Title III requirements affecting the food industry.

Restaurants & Bars: Access Equals Opportunity–A 30-page booklet developed under a DOJ grant by the Council of Better Business Bureaus Foundation that addresses compliance issues under Title III for restaurants and bars.

Retail Stores: Access Equals Opportunity–A 30-page booklet developed under a DOJ grant by the Council of Better Business Bureaus Foundation that addresses compliance issues under Title III for retail stores.

Communication and the ADA–A 4-page fact sheet developed under a DOJ grant by the American Speech-Language-Hearing Association. It provides guidance on complying with the ADA requirements for communicating effectively with persons who have hearing or speech impairments. Also available: *Communication Fact Sheet*–A 2-page fact sheet that provides an overview of various communication disabilities and methods that can be used to achieve effective communication.

Of Consuming Interest: A Guide to Title II and III of the ADA for People with Vision Loss–A 49-page guide developed under a DOJ grant by the American Foundation for the Blind presented in a question-answer format, containing information about the ADA for individuals who are blind, deaf-blind, or visually impaired. Also available: *Toward Equal Access: Providing Information Access Services to Blind and Visually Impaired Persons Under the ADA*–An 8-page booklet developed under a DOJ grant by the American Foundation for the Blind that provides information on ADA requirements mandating written material in formats accessible to people with vision impairments.

Title II Action Guide–Developed by Adaptive Environments Center, Inc., under a grant from the National Institute on Disability and Rehabilitative Research, U.S. Department of Education, this guide explains compliance obligations for state and local government programs and services.

ADA Nationwide Resources–A 43-page document developed under a DOJ grant by the Food Marketing Institute that contains a list of federal resources, regional centers for technical assistance, state councils that provide information and referral services, private organizations, and a list of publications on disability.

Telephone Numbers for ADA Information (U.S. Department of Justice)–A list that contains telephone numbers of federal agencies responsible for providing information about the ADA and organizations funded by the government to provide ADA information.

B. Other Government Resources

Equal Employment Opportunity Commission

The EEOC offers technical assistance to the public concerning Title I of the ADA.

To call with questions: (800) 669-4000 Voice
TTY: Use relay service
To order documents: (800) 669-3362 Voice
(800) 669-3302 TTY

Complaints about violations of Title I by state and local government or by private employers should be filed with the EEOC. For the field office in your area, call (800) 669-4000.

National Institute on Disability and Rehabilitation Research (NIDRR)

NIDRR funds a network of 10 regional Disability and Business Technical Assistance Centers (DBTACs) that provide information, training, and technical assistance to businesses and agencies covered by the ADA and to people with disabilities who have rights under the act. Contact any center by calling (800) 949-4232 Voice/TTY to be automatically connected to the center in your region.

U.S. Architectural and Transportation Barriers Compliance Board (ATBCB or Access Board)

ATBCB
1331 F Street, NW, Suite 1000, Washington, DC 20004-1111
(800) 872-2253 Voice, (800) 993-2822 TTY
(202) 272-5434 Voice, (202) 272-5449 TTY

The Access Board offers technical assistance to the public on the Americans with Disabilities Act Accessibility Guidelines (ADAAG), the Uniform Federal Accessibility Standards (UFAS), and the Americans with Disabilities Act Accessibility Guidelines (ADAAG) Checklist, a checklist for applying ADAAG in the design, construction, and alteration of buildings and facilities, including transit facilities.

The ATBCB is an independent federal architectural agency that establishes accessibility guidelines for the government, and produces and distributes a variety of publications. It provides technical assistance and information on the architectural requirements of the ADA and other access-related legislation, and on architectural, communication, and transportation accessibility.

The UFAS sets standards for accessible design that currently apply to all federal facilities, those built with federal funds, and those that receive federal funds.

U.S. Department of Transportation

The DOT offers technical assistance to the public concerning the public transportation provisions of Title II and Title III of the ADA.

Toll Free ADA Assistance:
(888) 446-4511
ADA Documents and General Questions:
(202) 366-1656 Voice

Electronic Bulletin Board:
(202) 366-3764

ADA Legal Questions:
(202) 366-4011 Voice

Complaints and Enforcement:
(202) 366-2285 Voice
(202) 366-0153 TTY

National Park Service

Office on Accessibility, P.O. Box 37127, Washington, DC 20013-7127
(202) 343-3674 Voice, (202) 343-1344 TTY, (202) 523-5186 Fax

Smithsonian Institution Accessibility Program

Arts and Industries Building, 900 Jefferson Drive, SW
Room 1239 MRC 426, Washington, DC 20560
(202) 786-2942 Voice, (202) 786-2414 TTY, (202) 786-2210 Fax

Library of Congress

National Library Service for the Blind and Physically Handicapped
1291 Taylor Street, NW, Washington, DC 20542
(202) 707-5100 Voice, (800) 424-8567 Voice
(202) 707-0744 TTY, (202) 707-0712 Fax

National Endowment for the Arts

Office of AccessAbility
1100 Pennsylvania Avenue, NW, Room 724, Washington, DC 20506
(202) 682-5532 Voice, (202) 682-5496 TTY, (202) 682-5613 Fax

II. Other ADA/Section 504 Accessibility Resources

The Arts and 504 Handbook, 1992–This handbook was designed to assist federally sponsored programs to comply with Section 504 of the Rehabilitation Act of 1973. Detailed text and illustrations describe UFAS and universal–access solutions to performing and other arts facilities for all types of disabilities. (National Endowment for the Arts)

Achieving Physical and Communication Accessibility–This guide explains the physical and communication accessibility needs of people with disabilities, including mobility, hearing, speech, visual, and cognitive disabilities. It suggests how businesses can assess their programs and services to determine if they are accessible.

A Compliance Guide to the Americans with Disabilities Act–This guide provides a concise overview of those ADA Titles that affect businesses. Explains how to understand the needs and expectations of employees and customers with disabilities, and includes an extensive list of disability organizations that assist businesses.

Adaptive Environments Center

374 Congress Street, Suite 301, Boston, MA 02210
(617) 695-1225 Voice/TTY, (617) 482-8099 Fax

ADA Checklist for Existing Facilities: The Americans with Disabilities Act Survey for Readily Achievable Barrier Removal

ADA Core Curriculum: Presentation Materials for the ADA Technical Assistance Network

ADA Cost Catalog for Access Modifications

The ADA Title III Fact Sheet Series

Fact Sheet 1: Who Has Obligations Under Title III?

Fact Sheet 2: Providing Effective Communications

Fact Sheet 3: Communicating with People with Disabilities

Fact Sheet 4: Tax Incentives for Improving Accessibility

Fact Sheet 5: Alternatives to Barrier Removal

Fact Sheet 6: Resources for More Information

Compliance with the Americans with Disabilities Act: A Self-Evaluation Guide for Public Elementary and Secondary Schools

Title II Action Guide

National Endowment for the Arts

Office of AccessAbility
1100 Pennsylvania Avenue, NW, Room 724, Washington, DC 20506
(202) 682-5532 Voice, (202) 682-5496 TTY, (202) 682-5613 Fax

Section 504 Self-Evaluation Workbook

Building Owners and Managers Association

1201 New York Avenue, NW, Suite 300, Washington, DC 20005
(202) 408-2685 Voice

BOMA ADA Compliance Checklist

To Order: BOMA International
P.O. Box 79330, Baltimore, MD 21279-0220
(800) 426-6292 Voice, (301) 843-0159 Fax

Van Nostrand Reinhold

7625 Empire Drive, Florence, KY 41042
(800) 842-3636 Voice, (606) 525-7778 Fax

UFAS Retrofit Guide: Accessibility Modifications for Existing Buildings–This illustrated guide for removing architectural barriers in retrofit situations is designed to be used in conjunction with the Uniform Federal Accessibility Standards (UFAS)

III. Accessible Exhibit and Program Design

American Association of Museums

1575 Eye Street, NW, Suite 400, Washington, DC 20005
(202) 289-1818 Voice, (202) 289-8439 TTY, (202) 289-6578 Fax
Web site: www.aam-us.org

*To order the nine documents below, contact AAM at the above address.

* **Everyone's Welcome: Universal Access in Museums,** 1996–This 24-minute video illustrates how your museum can provide opportunities for learning and enjoyment for all visitors, regardless of their ability or disability, age, educational background, or preferred learning style. Universal access means designing programs and facilities that are "user-friendly" in the broadest sense.

* **Museums and Children with Learning Difficulties: The Big Foot,** Anne Pearson and Chitra Aloysius, 1994–This book addresses ways museums can increase the enjoyment and educational opportunities of children with cognitive disabilities. Six programs produced at the British Museum in 1991 are specifically described. (British Museum Press)

* **Museums Without Barriers: A New Deal for Disabled People,** 1992–Published following an international conference on accessibility held in France in 1989, this volume profiles successful museum accessibility practices. It also sets an agenda for future action for museums worldwide. Includes a bibliography of international publications on accessibility. (Foundation de France and ICOM/Routledge).

* **New Dimensions for Traditional Dioramas: Multisensory Additions for Access, Interest, and Learning,** Betty Davidson, 1991–This book details how the Museum of Science, Boston, transformed its "New England Habitats" exhibit from a static, visually based presentation to a model multisensory experience to benefit all audiences. Described is the process used to develop the multisensory components, how they were constructed, and techniques used to evaluate the exhibit. (Museum of Science, Boston)

* **Part of Your General Public Is Disabled: A Handbook for Guides in Museums, Zoos, and Historic Houses,** Janice Majewski, 1987–Consists of a 108-page manual and a 23-minute videotape offering practical suggestions on how to effectively assist visitors with disabilities. Contains step-by-step procedures for planning tours accessible to diverse audiences, using material and equipment to disabled visitors' best advantage, handling emergency situations, and recognizing and working with various aids that people with disabilities use. (Smithsonian Institution)

* **The Accessible Museum: Model Programs of Accessibility for Disabled and Older People,** 1993–This well-illustrated book profiles the accessibility efforts of 19 American museums, botanical gardens, zoos, and aquariums that have reached out to disabled and older constituents in creative as well as cost-effective ways. *The Accessible Museum* offers many examples of successful access training approaches in museums throughout the United States. Training programs at the Brookfield Zoo, the Aquarium of the Americas, the Oakland Museum, Old Sturbridge Village, and the Kimbell Art Museum are just a few of the many examples described here. An extensive bibliography directs readers to accessibility resources since the passage of Section 504 of the Rehabilitation Act of 1973 (AAM).

* **User Friendly: Hands-On Exhibits That Work,** Jeff Kennedy, 1990–Kennedy studies the "human factors" involved in successful museum exhibitions, that is, the relationship between people and equipment. Using photographs and graphics to illustrate his analysis, Kennedy looks at factors such as strength, range of motion, height, and visual and aural ability in order to demonstrate how exhibit design can accommodate visitors of any ability. The section on exhibit controls is excellent. (Association of Science-Technology Centers)

* **Standards Manual for Signs and Labels,** 1995–The standards in this manual are based on recommendations by national organizations that represent people with disabilities and the findings of an MMA study on the legibility and accessibility of museum signs and labels. Text is well-illustrated and easy to read. (AAM/Metropolitan Museum of Art)

* **What Museum Guides Need to Know: Access for Blind and Visually Impaired Visitors,** Gerda Groff and Laura Gardner, 1989–This book provides practical, easy-to-use suggestions on how to greet and assist blind and visually impaired visitors. It also discusses how to balance aesthetics with Section 504 legal requirements for accessibility. A training outline for museum professionals is included along with a bibliography and guidelines for preparing large-print and other auxiliary aids. (American Foundation for the Blind)

National Assembly of State Arts Agencies (NASAA)

1010 Vermont Avenue, NW, Suite 920, Washington, DC 20005
(202) 347-6352 Voice/TTY, (202) 737-0526 Fax

Design for Accessibility: An Arts Administrator's Guide–An excellent general resource guide for any organization that deals with the arts, this contains accessibility checklists and extended lists of organizations and publications that address all aspects of access in arts programs, including museums.

National Park Service

Office on Accessibility, P.O. Box 37127, Washington, DC 20013-7127
(202) 565-1255 Voice, (202) 343-1344 TTY, (202) 523-5186 Fax

Access to Parks and Recreation Facilities, 1989 (Video)–This open-captioned video (13 minutes) discusses the efforts to achieve a sensitive balance between access and conservation for outdoor parks.

Interpretation for Disabled Visitors in the National Park System, David C. Park, et al., 1984–Addresses accessible exhibits and program design.

Smithsonian Institution Accessibility Program

Arts and Industries Building, 900 Jefferson Drive, SW
Room 1239 MRC 426, Washington, DC 20560
(202) 786-2942 Voice, (202) 786-2414 TTY, (202) 786-2210 Fax

Accessible Exhibitions: Testing the Reality, 1993. This report resulted from a joint effort by the Smithsonian Institution's Accessibility Program and its Institutional Studies Office. They document the results of a pan-institutional survey to evaluate physical and intellectual accessibility of Smithsonian exhibitions, publications, audiovisual productions, and programs. The reports offer the instructional manuals for conducting these surveys. The manual also suggests optimum accessibility standards for issues not specifically addressed by the law. Accessible Exhibits (Phase I) includes a standards manual checklist that relies on UFAS and ADAAG standards to determine minimum guidelines for physical accessibility of exhibitions. The manual also suggests optimum accessibility standards for issues not covered by the law. Equal Access (Phases II and III) includes a standards manual checklist for printed materials and audiovisual productions. This guide recommends museums rely on these excellent resources for their own compliance efforts.

Smithsonian Guidelines for Accessible Exhibition Design—a Smithsonian standards manual of accessible exhibitions, publications and media.

Association for Cerebral Palsy

73 Main Street, Room 402, Montpelier, VT 05602
(802) 223-5161 Voice/TTY

Arts and Recreation: Organizing to Ensure Access in Your Community–A step-by-step guide for communities that addresses access in arts and recreational programs.

The Americans with Disabilities Act White Paper: Society of Environmental Graphic Design's Clarification and Interpretation of the ADA Signage Requirements, 1993–Developed to assist designers from all disciplines, building owners, and facility managers, this publication provides clarification and interpretation of federal regulations for signage. (Society of Environmental Graphic Design, (202) 638-5555 Voice, (202) 638-0891 Fax, or e-mail SEGDOffice@aol.com)

Canadian Paraplegic Association

1101 Prince of Wales Drive, Suite 320, Ottawa, Ontario K2C 3W7 Canada
(613) 723-1033 Voice, (613) 723-1060 Fax

Design Guidelines for Media Accessibility

Design Guidelines for Accessible Outdoor Recreation Facilities

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Research Grant Guides

(407) 795-6129 Voice, (407) 795-7794 Fax

Directory of Grants for Organizations Serving People with Disabilities.

Questar Video, Inc.

P.O. Box 113454, Chicago, IL 60611-0345
(312) 266-9400 Voice, (312) 266-9523 Fax

Easy Access to National Parks, 1990–This 30-minute video tour of nine national parks emphasizes accessibility for people with varying abilities. Good examples of how sites with nature trails and outdoor interpretation have provided expanded access.

Sierra Club Store

730 Polk Street, San Francisco, CA 94109
(415) 923-5600 Voice, (800) 935-1056 Voice (Orders only), (415) 776-4868 Fax

Easy Access to National Parks: The Sierra Club Guide for People with Disabilities, Wendy Roth and Michael Tompane–Provides essential information on specific sites and accessibility.

Falcon Press

(800) 582-2665 Voice, (406) 442-2995 Fax

Everyone's Nature: Designing Interpretation to Include All, Carol Hunter, 1994–This well-illustrated guide is designed to help wildlife and land management specialists who are responsible for creating access to outdoor recreation facilities and programs for all visitors. It encourages universal design practices for outdoor museums.

The Rails to Trails Conservancy

1400 Sixteenth Street, NW, Suite 300, Washington, DC 20036
(202) 797-5400 Voice

Trails for the Twenty-First Century, 1993–All aspects of planning, design, and management of multi-use trails for outdoor parks are addressed.

MIG Communications

1802 Fifth Street, Berkeley, CA 94710
(510) 845-0953 Voice, (510) 845-8750 Fax

Universal Access to Outdoor Recreation: A Design Guide, 1993–Offers a framework for determining the appropriate level of accessibility in a range of outdoor recreation settings. It presents detailed guidelines for designing the elements and spaces necessary for accessible parks, signs, rest rooms, etc.

Library of Congress

National Library Service for the Blind and Physically Handicapped
1291 Taylor Street, NW, Washington, DC 20542
(202) 707-5100 Voice, (800) 424-8567 Voice
(202) 707-0744 TTY, (202) 707-0712 Fax

Volunteers Who Produce Books: Braille, Large Type, and Tape–This directory lists the names of volunteer groups and individuals, alphabetically by state, who transcribe and record books and other reading materials for blind and physically handicapped people. Each entry is assigned an index number and specifies such services as Braille transcription, computer-assisted transcription, print enlargements, tape recording, duplication, and binding. Entries also give such Braille code specialties as music, mathematics, and specific languages. Available in large print and Braille formats. Voice mail selections for both voice and touch-tone phone.

IV. Access and Historic Preservation

Massachusetts Historical Commission

Office of the Secretary of the Commonwealth
220 Morrissey Boulevard, Boston, MA 02125
(617) 727-8470 Voice, (800) 392-6090 TTY, (617) 727-5128 Fax

Accessibility and Historic Preservation: Entrances to the Past, 1993 (video with resource guide)

Accessibility and Historic Preservation Resource Guide, 1993

These two resources were produced by the National Park Service's Preservation Assistance Division and the Office on Accessibility, Historic Windsor, Inc. The resource guide is a compendium of legal requirements and instructional articles to guide historic property owners through planning and implementation of accessibility projects.

The video summarizes the legal requirements and successful application of the ADA to the entrances of historic structures and sites.

Access to History: A Guide to Providing Access to Historic Buildings for People with Disabilities, William D. Smith and Tara Goodwin Frier, 1989 (Currently under revision)–Provides the reader with steps and solutions toward making a historic building accessible, as well as providing various examples of accessible historic properties. Also discussed are the rules and regulations in Massachusetts that govern accessibility. A needs-assessment form is provided to help historic properties determine their level of accessibility.

National Trust for Historic Preservation

1785 Massachusetts Avenue, NW, Washington, DC 20036
(202) 588-6000 Voice, (202) 588-6200 TTY, (202) 588-6223 Fax

The Impact of the Americans with Disabilities Act on Historic Structures, Information Series #55, 1991–A brief overview of how the ADA affects historic properties with specific examples of program expansion and physical access for several sites across the country.

Government Printing Office

Preservation Brief #32
(202) 512-1800 Voice, (202) 512-2250 Fax

Making Historic Properties Accessible, T. Jester and S. Park, 1993–Prepared by staff at the National Park Service's Preservation Assistance Division, this is a brief overview of legal requirements and specific suggestions for meeting the physical requirements of the ADA on both exteriors and interiors of historic buildings.

National Park Service

Preservation Assistance Division
P.O. Box 37127, Washington, DC 20013-7127
(202) 343-3674 Voice, (202) 343-4168 Fax

Preserving the Past and Making It Accessible for People with Disabilities, T. Jester, 1992–A brochure in question-and-answer format that includes a list of helpful organizations, useful publications, and state historic preservation offices.

Accommodation of Disabled Visitors at Historic Sites in the National Park System, Duncan S. Ballantyne, 1983.

V. Museum Accessibility Programs

American Association for the Advancement of Science

Project on Science, Technology and Disability
1200 New York Avenue, NW, Washington, DC 20005
(202) 326-6649 Voice/TTY, (202) 371-9849 Fax

American Association of Museums

ADA Project
1575 Eye Street, NW, Suite 400, Washington, DC 20005
(202) 289-1818 Voice, (202) 289-8439 TTY, (202) 289-6578 Fax

Association of Science-Technology Centers Incorporated

1025 Vermont Avenue, NW, Suite 500
Washington, DC 2005-3516
(202) 783-7200, (202) 783-7000 Fax
http://www.astc.org/camp/accmain.htm (accessibility pages)

National Center on Accessibility

5020 State Road, 67 North, Martinsville, IN 46151
(800) 424-1877 Voice/TTY, (317) 349-9240 Voice/TTY, (317) 342-6658 Fax

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National Endowment for the Arts (NEA)

Office of AccessAbility, Rm. 724
1100 Pennsylvania Avenue, NW, Washington, DC 20506
(202) 682-5532 Voice, (202) 682-5496 TTY, (202) 682-5651 Fax

National Park Service

U.S. Department of the Interior, Heritage Preservation Services
P.O. Box 37127, Washington, DC 20013-7127
(202) 343-9573 Voice, (202) 343-3803 Fax

Parks Canada

National Access Program, 14th Floor
25 Eddy Street, Hull, Quebec K1A 0M5 Canada
(819) 994-2847 Voice, (819) 997-4915 TTY, (819) 953-4330 Fax

Smithsonian Institution

Accessibility Program
Arts & Industries Building, 900 Jefferson Drive, SW
Room 123a, MRC 426, Washington, DC 20560
(202) 786-2942 Voice, (202) 786-2414 TTY, (202) 786-2210 Fax

U.S. Department of the Interior

Office on Accessibility, P.O. Box 37127, Washington, DC 20013-7127
(202) 343-3674 Voice, (202) 343-1344 TTY, (202) 523-5186 Fax

Very Special Arts

Education Office
1300 Connecticut Avenue, NW, Suite 700
Washington, DC 20036
(800) 933-8721 Voice, (202) 628-2800 Voice
(202) 737-0645 TTY, (202) 737-0725 Fax

VI. Access Training Materials

Very Special Arts

JFK Center for Performing Arts
1300 Connecticut Avenue, NW, Suite 700, Washington, DC 20036
(800) 933-8721 Voice, (202) 628-2800 Voice, (202) 737-0645 TTY, (202) 737-0725 Fax

Disability Awareness Guide, 1997– This 58-page guide provides a "user-friendly" resource of basic information about various disabilities and is meant as a starting point in a search for greater knowledge and sensitivity to the issues surrounding disability. The first section begins with an introduction to the Americans with Disabilities Act (ADA), including an overview of who is covered by the legislation, a definition of architectural and communication barriers, and suggestions to improve access. Subsequent sections focus on specific disabilities and contain factual information, suggestions on interacting with individuals with a disability, and available supplementary resources.

Parks Canada

National Access Program, 14th Floor, 25 Eddy Street
Hull, Quebec K1A 0M5 Canada
(819) 994-2847 Voice, (819) 997-4915 TTY, (819) 953-4330 Fax

The goal of the Parks Canada Access Series is to sensitize park staff about the needs of people with various types of disabilities. Presented in a clear, easy-to-read format, the guides demonstrate appropriate and inappropriate language and attitudes using exercises and role playing.

Disability Awareness and Sensitivity Training, 1990
Discover Ability: Barrier Free Access Training on Seniors and People with Disabilities, 1993

Understanding Persons with Mental Health and Developmental Disabilities, 1994

National Center on Accessibility

5020 State Road 67 North, Martinsville, IN 46151
(800) 424-1877 Voice/TTY, (317) 349-9240 Voice/TTY, (317) 342-6658 Fax

Resource Guide–This guide is a comprehensive and well-organized compilation of publications, magazines, and videos that are available on the topic of accessibility and recreation, including parks, museums, zoos, and related activities.

VII. Technical Assistance, Training and Related Publications

The following organizations offer a variety of accessibility expertise, including innovative design, training, and interpretation of the law. They can often identify resources in your area that you can contact for additional information and services.

AbleData

8455 Colesville Road, Suite 935
Silver Spring, MD 20910
(800) 227-0216 Voice/TTY, (301) 588-9284 Voice/TTY

This database is funded by NIDRR with over 17,000 listings of adaptive equipment for people with all types of disabilities. AbleData assists with identifying technological solutions for specific functional limitations.

American Hotel and Motel Association

1201 New York Avenue, NW, Suite 600, Washington, DC 20005-3931
(202) 289-3100 Voice, (202) 289-3199 Fax

Accommodating All Guests–This little book provides an overview and a checklist of ADA requirements for small hotels, bed and breakfasts, and other types of lodging accommodations.

Barrier Free Environments, Inc.

410 Oberlin Road, Suite 400
Raleigh, NC 27506
(919) 839-6380 Voice/TTY, (919) 839-6382 Fax

A private for profit design firm that provides consulting and design services, presents educational seminars, and produces technical assistance materials on the ADA and the Fair Housing Amendments Act.

Building Owners and Manager Association (BOMA)

1201 New York Avenue, NW, Suite 300, Washington, DC 20005
(202) 408-2685 Voice, (202) 371-0181 Fax

BOMA offers a videotape on the legal requirements for making facilities accessible. It covers barrier removal, alterations, and new constructions.

Center for Universal Design (CUD) (formerly Center for Accessible Housing)

North Carolina State University, P.O. Box 8613, Raleigh, NC 27695-8613
(919) 515-3082 Voice/TTY, (919) 515-3023 Fax
e-mail: cahd@ncsu.edu

A federally supported center, CUD works on housing for people with disabilities. It provides information and technical assistance by phone and through numerous publications.

Disability Rights Education and Defense Fund (DREDF)

2212 Sixth Street, Berkeley, CA 94710
(800) 466-4ADA Voice/TTY, (510) 644-2555 Voice/TTY, (510) 841-8645 Fax

A legal resource center, DREDF provides training, technical assistance, and informed analysis of requirements under disability law. It is funded by the Department of Justice.

DREDF offers a video, "Open for Business," that presents options for readily achievable barrier removal in public accommodations.

Environmental Access

1010 Oregon National Building, 610 SW Alder, Portland, OR 97205
(503) 226-3342 Voice
TTY: Dial operator and ask for Oregon Relay Services
(503) 226-4865 Fax

Offers information on access for outdoor activities.

Graphic Artists Guild Foundation

90 John Street, Suite 403, 8th floor
New York, NY 10038-3202
(212) 791-3400 Voice
(800) 878-2753 voicemail, (212) 791-0333 Fax
Web site: www.gag.org/das/

Offers 12 accessibility symbols in electronic format to help organizations advertise their access services to customers, audiences, and staff. Available on either PC or Mac disks by writing to GAGF or downloading files from the Web site.

Job Accommodation Network (JAN)

West Virginia University
918 Chestnut Ridge Road, Suite 1, P.O. Box 6080
Morgantown, WV 26506
(800) ADA-WORK Voice/TTY, (800) 526-7234 Voice/TTY
(304) 293-7186 Voice/TTY, (304) 293-5407 Fax

JAN is an international information and consulting resource for employers and job applicants that helps solve specific job accommodation problems through their toll-free hotline. It is a service of the President's Committee on Employment of People with Disabilities.

National Rehabilitation Information Center

8455 Colesville Road, Suite 935, Silver Spring, MD 20910
(800) 346-2742 Voice/TTY, (301) 588-9284 Voice/TTY
(301) 495-5626 TTY, (301) 587-1967 Fax

National Service Dog Center

289 Perimeter Road East, Renton, WA 98005-1329
425 644-5958 Voice, 425 644-7378 Fax

Service Dogs Welcome is an education system for integration into existing employee education programs. The system includes a 15 minute video, informational poster, entrance stickers, and business training kit, that enables public entities to prepare staff to competently respond to service animal issues.

RESNA Technical Assistance Project

1700 North Moore Street, Arlington, VA 22209-1903
(703) 524-6686 Voice, (703) 524-6639 TTY, (703) 524-6630 Fax

RESNA, an interdisciplinary association for the advancement of rehabilitation and assistive technologies, provides information and professional consultation related to assistive technology services for states that have assistive technology grants from NIDRR. Contact RESNA to learn whether your state has a technology project.

RESNA

1101 Connecticut Avenue, NW, Suite 700, Washington, DC 20036
(202) 857-1199 Voice, (202) 857-1140 TTY

Workplace Workbook 2.1–This illustrated guide offers workplace adaptations for employees or volunteers with various functional limitations; includes universally designed solutions.

The President's Committee on Employment of People with Disabilities

1331 F Street, NW, 3rd Floor, Washington, DC 20004-1107
(Call for list of publications.)
(202) 376-6200 Voice, (202) 376-6205 TTY, (202) 376-6219 Fax

This agency produces technical assistance materials, including videotapes, public service announcements, and fact sheets. Information is on job accommodation, tax incentives, and other topics.

Universal Designers & Consultants, Inc.

6 Grant Avenue, Takoma Park, MD 20912
(301) 270-2470 Voice/TTY, (301) 270-8199 Fax
Web site: www.UniversalDesign.com

UD&C provides accessibility consulting services and publishes *Universal Design Newsletter* which investigates environmental accessibility and searches for universal design.

WGBH Educational Foundation

125 Western Avenue, Boston, MA 02134
(617) 492-9225 Voice/TTY, (617) 562-0590 Fax
Contact: Margaret Albright
e-mail: Margaret_Albright@WGBH.org
Web site: www.wgbh.org click on Products & Services

The Media Access Department at WGBH serves as a resource to institutions and producers of various media exploring solutions to access for persons with disabilities in museums, historic sites, parks, and visitor centers through the following divisions:

The Caption Center–A nonprofit service providing live and preproduced captioning and subtitling for broadcast and nonbroadcast productions. Can provide captioning in two languages simultaneously and is experienced in captioning for videodisc.

Descriptive Video Service®–Makes video, television, and other media accessible to blind and low vision individuals. Creates descriptive narration tracks for video materials and can assist in equipment and delivery system selection for various sites.

National Center for Accessible Media–Researches and develops ways of making all media accessible to those with disabilities. Among other projects, NCAM is researching access to the World Wide Web, use of captions in educational settings, and is developing a system to deliver both captions and description in a motion-picture theater setting.

John Wiley Publishing:

1-800-879-4539

The 1995 Accessible Building Products Guide, John P. S. Salmen, and Julee Quarve-Peterson, with James A. DiLuigi–This resources directory serves as a definitive product guide. Designed for quick reference, it provides more than 100 categories and subcategories of products for use in commercial, residential, and recreational facilities with instant access to more than 650 separate products available from more than 400 manufacturers.

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